

The

CONSTRUCTOR

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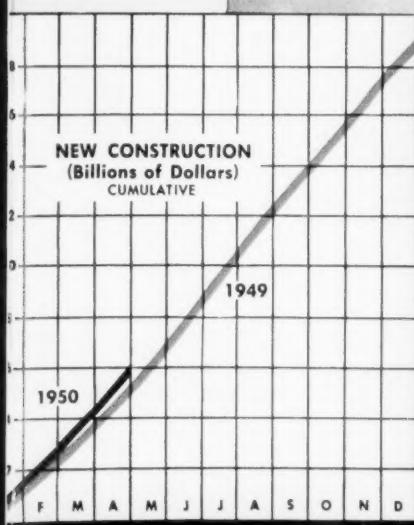
• BUILDINGS

• HIGHWAYS

• AIRPORTS

• RAILROADS

• PUBLIC WORKS



Volume Exceeding Predictions —Page 23

Denial of Recourse to the Courts—Page 39

Tips on Preliminary Estimates —Page 54

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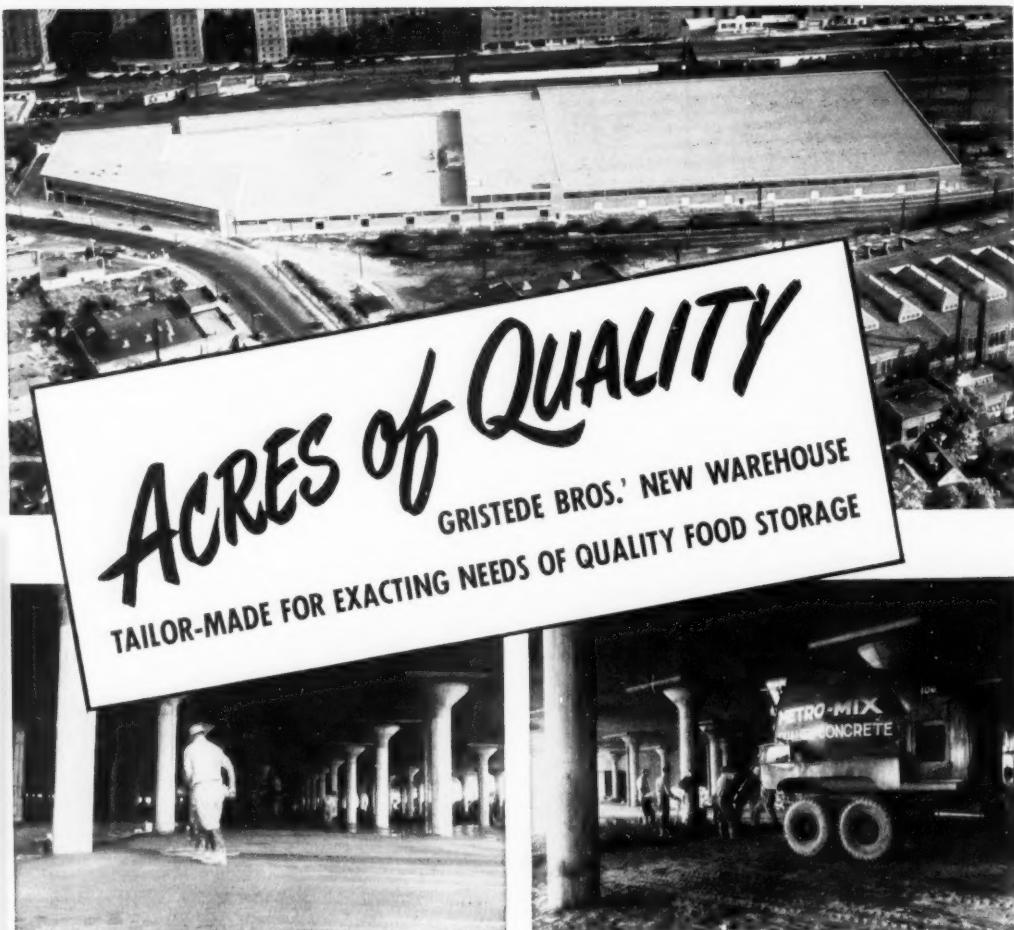
Hi-Bond from Ryerson for Greatest Grip Meets and Exceeds New ASTM Spec. A305-49

With Hi-Bond reinforcing bars, designers can take full advantage of the higher compressive strengths of modern concretes and the higher tensile strength of new steels. Write for new bulletin describing Ryerson service on this unique reinforcing bar. Ryerson Steel, Box 8000-A, Chicago 80, Illinois.



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The CONSTRUCTOR

CONTENTS

BUILDINGS • HIGHWAYS • AIRPORTS RAILROADS • PUBLIC WORKS



GENERAL

Construction Volume Breaking All Previous Records..... 23

BUILDING

How Can Architects Best Make Preliminary Estimates? *J. P. H. Perry* 53
Connecticut Housing Program Unique 60
VA Discards Private Architects' Work 62

HIGHWAYS • AIRPORTS

Houston Expressway Stretch Already Approaching Capacity 49
Funds Seen Greatest Highway Problem by A.A.S.H.O.-A.G.C. Group 50

HEAVY • RAILROAD

Contractor's Ingenuity Puts Job Ahead 67
Memo from a Contractor to Employees 68

LEGISLATION

Force Account Limit Again Asked on Reclamation Jobs 27
Slow Action May Delay Appropriations 27
Principal Provisions of New Housing Act 28
Two Federal Aid Highway Bills Pending 28

CONTRACTS • SPECIFICATIONS

Has the Contractor Recourse to the Courts? *John C. Hayes* 39

EXECUTIVE DEPARTMENT

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COVER

The cover photograph shows girders being bolted into place on one of the many construction jobs throughout the Dominion of Canada. It was taken by Photographer Ross Jackson, of Ottawa, locale of much of the postwar construction boom being enjoyed by Canada. New construction volume there increased by 38 per cent in 1948 over 1947, and was 182 per cent more than in 1944. Building construction has been substantial. Ontario accounts for more than 40 per cent of the Canadian total.

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LABOR RELATIONS

Close Vote Expected on Plan to Abolish Denham's Job..... 36

FOREIGN CONSTRUCTION

Netherlands Building Group Sees U. S. Industry at Work 73

INDUSTRY RELATIONS

Joint Committee with Surety Association of America
Named 46

ACCIDENT PREVENTION

Four Years of Major Work without a Critical Accident *Harry E. Highland* 30

ALSO IN THIS ISSUE

News of the Month	5
Constructographs	7, 9, 11, 13
Consumers' Price Index	13
Sideights for Contractors	<i>John C. Hayes</i> 19
Editorial	21
National Defense	49
Chapters and Branches	74
Bid Opening Dates for Large Projects	82
New Equipment and Materials	83
Advertisers' Products	99
Index of Advertisers	103

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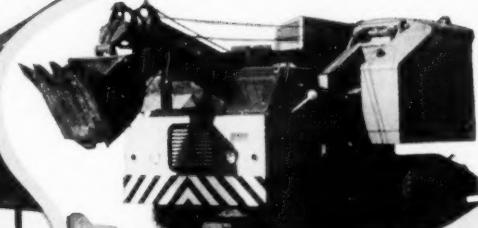
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PROFIT



Right of appeal to the courts in many instances is denied to the general contractor. Recent court decisions have given new answers to this problem. The cases are discussed by John C. Hayes, A.G.C. legal adviser, on page 39.

Business activity continued strong in March to complete a quarter of moderate expansion in the economy, the Department of Commerce has reported. Sparking improved activity during the quarter were a pickup in business spending, continuation of the construction boom, and higher consumer expenditures reflecting a larger income flow, the department stated.

The spring pickup in employment continued at a heightened pace between March and April, the Census Bureau reported. Total civilian employment for the week ending April 8 was estimated at 58,668,000, about 1,100,000 higher than the corresponding week in March. Unemployment was down to 3,515,000. Seasonal employment gains in construction, farming and trade were a major factor in the change.

Upsetting all predictions, the construction industry in April exceeded all previous records for that month in the volume of work put in place. A similar record was made for the first quarter of the year. In the first four months of the year new construction valued at more than \$6.1 billion was put in place, the Commerce and Labor Departments estimate. (Page 23)

Continued limitation on the amount of funds which the Bureau of Reclamation may spend for construction operations by force account was asked by The Associated General Contractors of America in testimony before a Senate appropriations subcommittee. The House committee had omitted the limitation when reporting the appropriation bill. A limitation has been included in each appropriation starting with the fiscal year beginning June 30, 1947. (Page 27)

Continued from page 27

Possibility that federal public works appropriations may not become available on July 1 when the 1951 fiscal year begins became evident late in April. The Congress is trying the experiment of including nearly all federal appropriations in one \$29 billion bill. Progress in the House so far has been slow. (Page 27)

A close but favorable vote was expected this month in the Senate on a resolution sponsored by Senator Taft to disapprove the President's recommendation to abolish the Office of General Counsel of the National Labor Relations Board. The A.G.C. has testified that an independent Office of General Counsel is helpful to the construction industry. (Page 36)

The Surety Association of America and The Associated General Contractors of America have established a national joint cooperative committee to work in the field of bonding and suretyship. The A.G.C. maintains similar joint committees with the societies or associations of architects, civil engineers, machinery manufacturers and distributors, and state highway and state aviation officials. (Page 16)

The composite mile cost index of the Bureau of Public Roads showed a 3.2 per cent drop during the first quarter of 1950 below the previous quarter. The index for the first quarter this year is 140.7, which is 14.9 per cent below the postwar peak that occurred in the last quarter of 1948. In the first quarter the cost of common excavation declined 8.6 per cent below the fourth quarter of 1949, the cost of concrete pavement fell 1.7 per cent, and the cost of structures 0.6 per cent.

How can architects best make preliminary estimates of the cost of their projects? A thorough discussion of this problem is given by J. P. H. Perry, consultant, Turner Construction Company, New York City, in an article starting on page 54.

The Veterans Administration indicated it may be planning to discon-

time the use of private architects, and to have other agencies of the government supervise portions of its work in the hospital construction program. (Page 62)

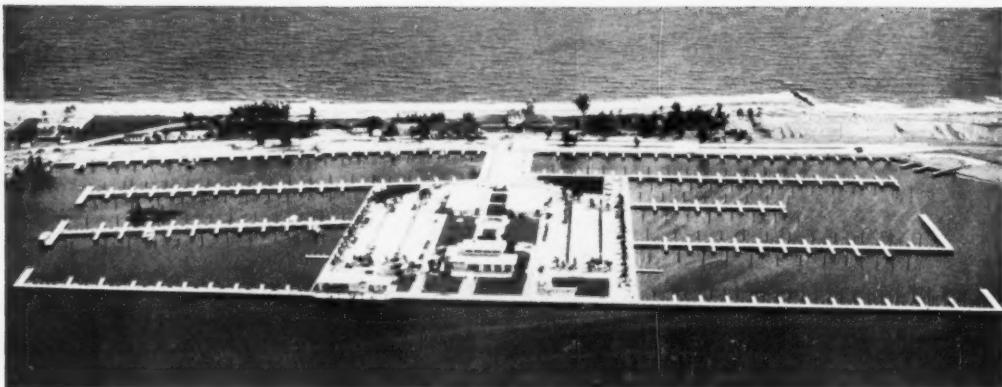
Netherlands construction industry representatives early this month will return to Holland after a six-week tour of part of the United States studying construction methods here. The Netherlands industry is faced with the problem of increasing its productivity and lowering its costs in the work of repairing war damage and construction of the facilities needed by an expanding population. The A.G.C. and several A.G.C. chapters, and other industry groups, helped the Economic Cooperation Administration sponsor the tour. (Page 73)

A record of no fatalities or critical accidental injuries has been made by general contractors working for the Denver District of the Corps of Engineers during the past four years. During that time more than \$25 million worth of construction was completed with more than 5.5 million man hours of employment. The story of the safety record starts on page 30.

The East Texas Chapter officially became a part of the A.G.C. on April 3 when its charter was presented by W. Murray Werner, a national director of District 4. The total number of A.G.C. chapters and branches is now 111. (Page 76)

The Seattle Chapter will join the growing number of A.G.C. chapters with buildings of their own when its new \$125,000 building is completed. Construction started last month. (Page 74)

A booklet containing the names of A.G.C. officers, directors, members of the Advisory Board, the chairmen and members of all committees, and the names and addresses of presidents and managers of all chapters and branches was mailed to all A.G.C. members early this month.



Bahia-Mar Yacht Basin facilities include berths and appurtenances for approximately 500 craft.

The yacht basin that came off the "assembly line" . . .
made with LEHIGH EARLY STRENGTH CEMENT



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Portion of Powell Brothers' yard where precast concrete units were poured.

Fort Lauderdale's new Bahia-Mar Yacht Basin had to be ready for business before the 1950 season opened. This called for careful planning and the right material. With well organized construction methods and Lehigh Early Strength Cement, one operation followed the other with "assembly line" speed and precision . . . and the job was finished on time.

The concrete piles, pier slabs and bulkhead slabs were precast in Powell Brothers' yard and barged to the site. Because the concrete reached service strength in one quarter of the usual time, the supply could be so closely controlled that changes in pile lengths could be made without retarding job progress.

Using templets for aligning the piles and supporting the slabs, an average of 80 feet of bulkhead and 100 linear feet of pier were set in place daily. Six 30-ft. docks were frequently erected in a day with one derrick and barge crew.

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OWNERS: Bahia-Mar Corporation. GENERAL CONTRACTORS: Universal Construction Company, Fort Lauderdale, Fla. ENGINEERS: J. H. McDaniel and F. V. Almon, Fort Lauderdale, Fla. ARCHITECTS: Charkiewicz & Johnson Associates, Cincinnati, Ohio. CONTRACTORS FOR CONCRETE WORK: Powell Brothers, Inc., Fort Lauderdale, Fla.

Lehigh
CEMENTS

A Series of Graphs Outlining the Construction Trend

Compiled by The Associated General Contractors of America

TREND OF CONSTRUCTION COSTS

The average of construction costs in the principal construction centers of the United States for April stands at Index Number 346, according to the A.G.C. Index. The cost figure for April 1949 was 340. The 1913 average equals 100.

WAGE AND MATERIAL PRICE TRENDS

The average of wages in the principal construction centers of the United States stands at 465 for April. One year ago the average stood at 453. The average of prices paid by contractors for basic construction materials for April stands at Index

Number 266. The average a year ago stood at 265. The 1913 average, again, equals 100.

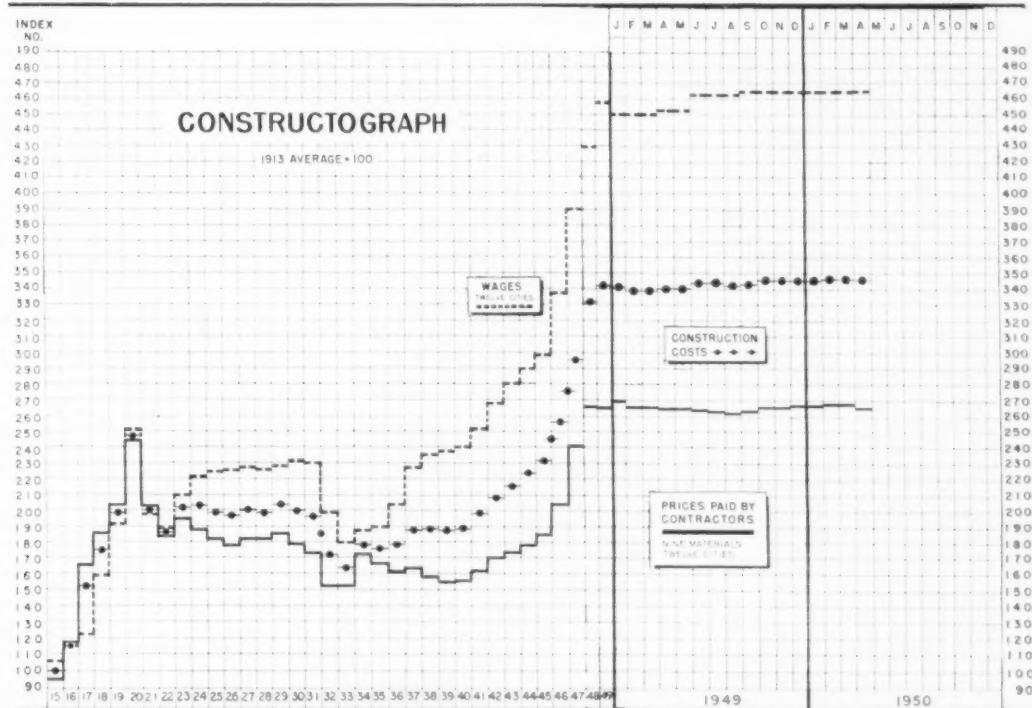
CONTRACT AWARDS IN 37 STATES

The volume of contracts awarded during March (Index Number 284, based on 1936-1938) is an increase of 113 points from February, and an increase of 117 points above March 1949.

REVENUE FREIGHT LOADINGS

Revenue freight loaded during the first 16 weeks of 1950 totaled 10,257,160 cars. For the same period in 1949, loadings amounted to 11,249,385 cars. This represents a decrease of 8.8 per cent.

● Wage, Material Price and Construction Cost Trends



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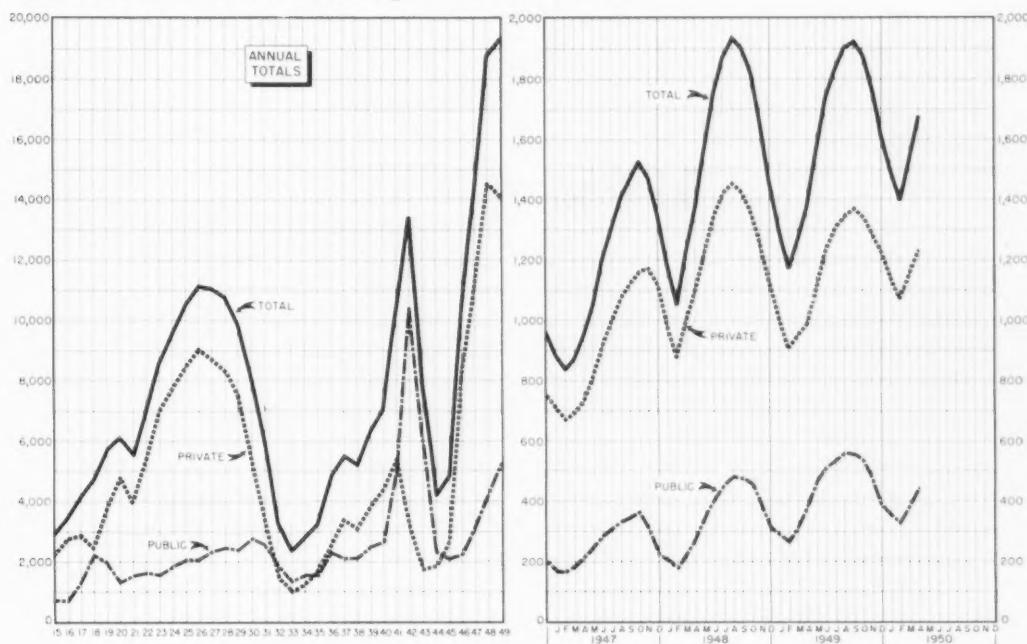
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● New Construction Activity (MILLIONS OF DOLLARS)



DATA SUPPLIED BY DEPTS. OF COMMERCE AND LABOR

Construction activity charts in the Constructographs section will be revised in the June issue in line with substantial revisions to be made by the Departments of Commerce and Labor in their series dating back to 1915. The revisions will take into account certain types of construction for which estimates have not been available (see page 23). The data given here in tabular form and in the regular charts are based on current methods, and will not be comparable to the new graphs to appear in June. These figures are joint estimates of the Departments of Commerce and Labor. The "Postwar Comparison" graph is being discontinued.

New Construction Estimates (Millions of Dollars)

TYPE OF CONSTRUCTION	1950		
	April	First 4 Months	1949
Total new construction	1,697	6,128	5,102
Total private	1,254	4,616	3,847
Residential (excl. farm)	720	2,610	1,740
Nonresidential building	244	985	1,069
Industrial	70	278	399
Warehouses, office & loft bldgs.	22	95	104
Stores, restaurants and garages	52	205	211
Other nonresidential building	100	407	355
Farm construction	30	72	70
Public utility	260	949	968
Total public	443	1,512	1,255
Residential	25	93	40
Nonresidential building	160	593	474
Educational	80	310	252
Hospital and institutional	46	170	120
Other nonresidential building	34	113	102
Military and naval	10	38	31
Highway	110	310	288
Sewer and water	50	186	168
Misc. public service enterprises	10	32	28
Conservation and development	60	203	180
All other public	18	57	46

TOUGH MOUNTAIN HAULS

...a daily dish

HAULING 10½ bank yard loads of granite over mountain trails at altitudes up to 8300 feet is a real test of a Diesel engine's brute strength and stamina.

To see how General Motors Diesels take such work in stride, look at the record three LeTourneau Tournarockers, powered with GM Diesels, made for contractors Horner and Switzer on relocation of United States Highway 280 at Granby Dam, Colorado.

Checked on a haul of 1240 feet each way, including a 170-foot stretch of 13½ adverse grade, each Tournarocker took only 4½ minutes to travel, dump and return to shovel. Haul road conditions were poor due to heavy rainfall. Yet haul cycles were so fast that on most distances only two of the Tournarockers were needed to keep the 2½-yard rock shovel busy. Together, these three 16-ton units moved 220,000 yards of granite.

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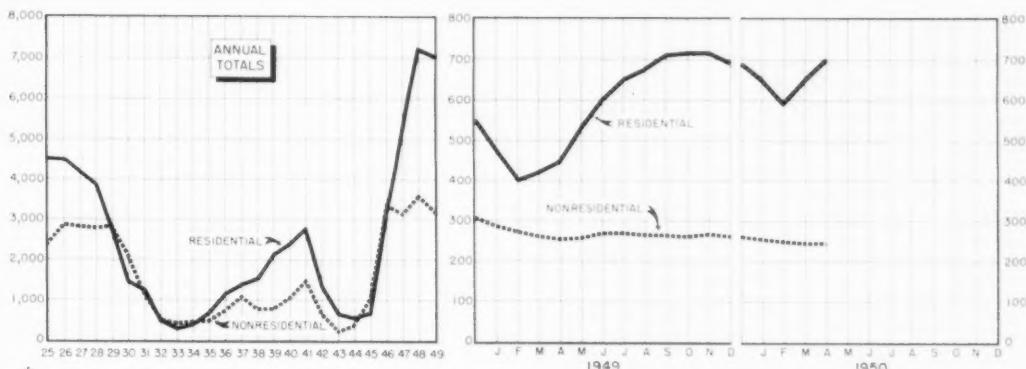
SINGLE ENGINES . . . Up to 275 H.P. DETROIT 28, MICHIGAN MULTIPLE UNITS . . . Up to 800 H.P.
GENERAL MOTORS

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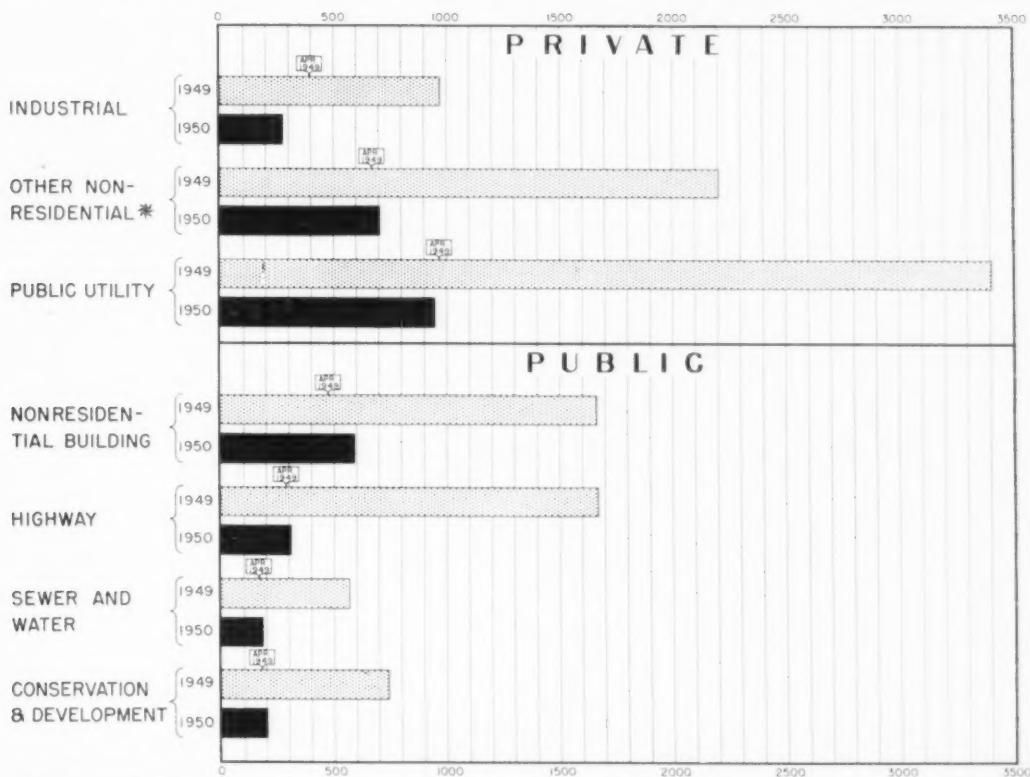
NEW CONSTRUCTION ACTIVITY

● Private Residential and Nonresidential Building* (MILLIONS OF DOLLARS)



* Residential excludes farm; Nonresidential includes industrial, commercial, institutional, and social and recreational building, but excludes public utility building.

● Selected Types: (CUMULATIVE, MILLIONS OF DOLLARS) 1949 and 1950 VOLUME THROUGH APRIL



* Includes commercial, institutional, and social and recreational building.

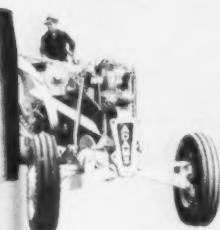
ONLY ADAMS

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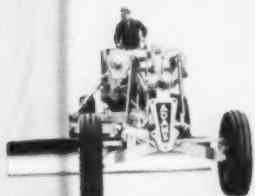
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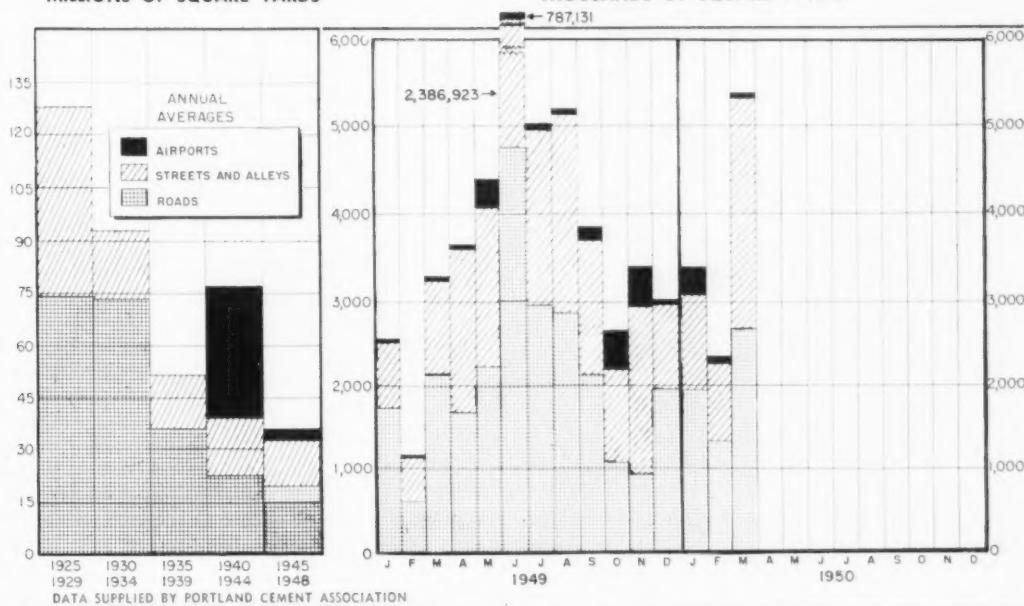
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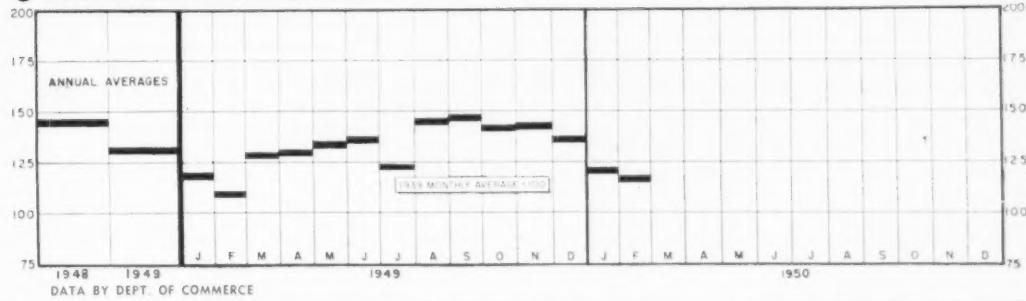
● Concrete Surface Pavement Awards

MILLIONS OF SQUARE YARDS

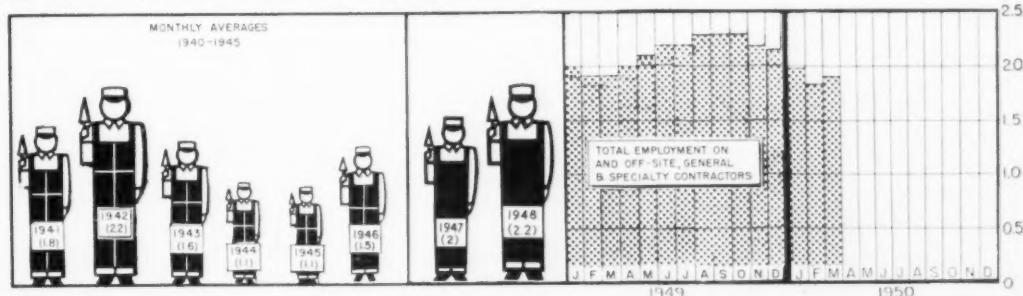
THOUSANDS OF SQUARE YARDS



● Materials Index: COMPOSITE PRODUCTION INDEX OF 20 MATERIALS



● Contract Construction Employment (MILLIONS)

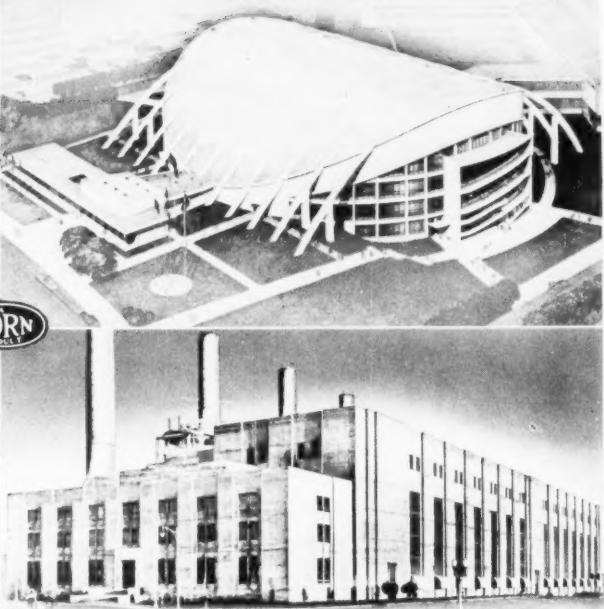


THE CONSTRUCTOR, MAY 1950

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COMPANY _____

ADDRESS _____

CITY _____ STATE _____

For Moderate Income Families in Large Cities

(Formerly referred to as the "Cost of Living Index," compiled by the Bureau of Labor Statistics)

This table indicates the average changes in retail prices of selected goods, rents and services bought by the average family of moderate income from January 15, 1948 to March 15, 1950.

They are presented here for use by employers who may wish to take these cost of living data into consideration when contemplating adjustments of wages based on increased living costs.

The Bureau of Labor Statistics surveys 10 key cities every month and 24 other large cities quarterly. Prices are obtained on food, fuel, apparel, house furnishings and miscellaneous goods and services. Rental information is obtained quarterly only for all cities. The computations are based on the indexes for the years 1935-39, which are taken as the average of 100 points.

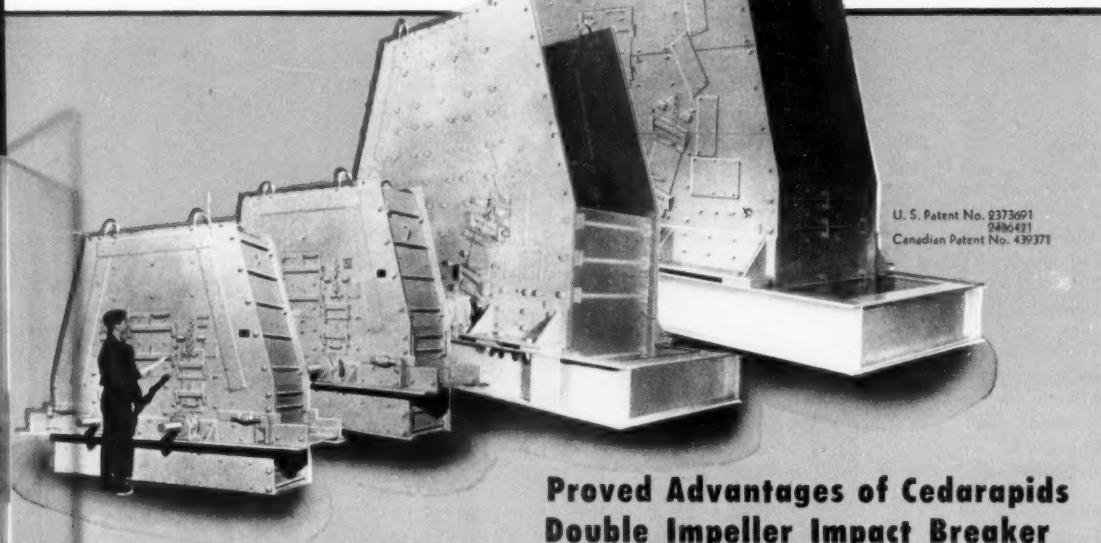
	1948			1949			1950		
	JAN. 15	FEB. 15	MAR. 15	JAN. 15	FEB. 15	MAR. 15	JAN. 15	FEB. 15	MAR. 15
Average	168.8	167.5	166.9	170.9	169.0	169.5	166.9	166.5	167.0
Birmingham, Ala.	174.4	172.8	172.0		171.7	171.8	166.9	166.4	168.4
Mobile, Ala.			169.9	173.7		171.1			166.2
Los Angeles, Calif.	167.6	168.1	167.4	172.7	171.3	171.0	166.9	166.1	165.9
San Francisco, Calif.			171.4			174.6			172.3
Denver, Colo.	167.0			171.0			164.5		
Washington, D. C.		163.2			164.1			163.6	
Jacksonville, Fla.			172.8			174.3			174.8
Atlanta, Ga.		169.2			170.1			168.3	
Savannah, Ga.	175.6			176.7			169.1		
Chicago, Ill.	171.5	168.8	169.0	174.9	172.9	174.5	172.3	172.0	172.9
Indianapolis, Ind.	172.3			173.6			170.6		
New Orleans, La.		177.1			173.2			170.6	
Portland, Maine			162.7			165.0			163.7
Baltimore, Md.			170.9			173.9			170.1
Boston, Mass.	163.1	161.3	160.8	163.9	161.4	162.5	161.5	160.7	162.0
Detroit, Mich.	170.6	169.0	168.7	171.6	170.7	170.8	168.5	168.1	168.3
Minneapolis, Minn.			167.7			169.3			167.1
Kansas City, Mo.	162.4			165.1			160.6		
St. Louis, Mo.			167.8			169.0			
Manchester, N. H.	172.5			172.3			167.1		167.4
Buffalo, N. Y.	167.4			169.8			164.8		
New York, N. Y.	167.1	166.4	164.3	169.2	166.8	167.4	163.7	163.7	164.0
Cincinnati, Ohio	171.2	170.1	169.3	172.0	169.7	170.7	167.7	167.2	167.9
Cleveland, Ohio		171.6			172.5			168.7	
Portland, Ore.	174.4			178.6			173.8		
Philadelphia, Pa.	168.4	166.6	165.5	170.4	168.5	169.0	165.9	165.1	166.0
Pittsburgh, Pa.	172.3	170.1	170.1	174.6	172.1	172.7	169.9	169.5	169.5
Scranton, Pa.			166.5			166.8			163.7
Memphis, Tenn.			172.4			173.3			169.4
Houston, Texas	170.8	170.4	170.0	172.6	170.2	170.2	172.8	172.0	172.9
Norfolk, Va.		170.1			170.6			167.1	
Richmond, Va.	165.1			166.5			161.8		
Seattle, Wash.		170.7			174.3			171.6	
Milwaukee, Wis.		166.9			168.7			167.6	

HERE'S the latest addition to the already broad line of Cedarapids crushers! The Double Impeller Impact Breaker, formerly made by New Holland, makes it possible to handle almost *any* primary or secondary crushing job with Cedarapids equipment.

The Impact Breaking principle, which produces cubical shaped particles required in so many specifications, reaches its greatest development in the Double Impeller Impact Breaker. It will give you greater capacities of better aggregate without excessive power or maintenance cost.

NOW A

DOUBLE



U. S. Patent No. 2373691
2486481
Canadian Patent No. 439371

Proved Advantages of Cedarapids Double Impeller Impact Breaker

- # EXTREMELY high ratio of reduction means less accessory equipment such as conveyors, hoppers, screens, elevators and secondary crushers.
- # PRODUCES ideal cubical product even in slabby material. In eastern quarries where conventional types of crushers broke the stone up into high percentages of flats and elongated particles the Impact Breaker reduced the percentage from 24% to 6%.
- # ELIMINATES most soft stone from the finished product.
- # Can be operated in contaminated material where most other types of equipment would clog, because a greater number of large pieces of stone or gravel bombarding the cage bars help to keep the breaker clean.
- # LESS horsepower required per ton of material

in most all cases because the massive impellers statically balanced, have a flywheel effect and a great percentage of stone is broken in mid-air by stone hitting stone resulting in a greater reduction in milling and crushing action.

BIG volume production. In a dolomite installation in Ohio the operator claimed 720 tons per hour using two 150 h.p. motors.

APPROXIMATELY 50% less contact of stone on metal because a high percentage of the material is broken by impact against other material rather than against the breaker bars. Also attrition minimized as entire discharge opening is free of grates, etc.

BIG production and high reduction ratio mean lower plant investment.

CHOICE of four sizes from Model 5050, which will take 50" rock up to 400 tons per hour and reduce it to 4" minus in one operation, down to the Model 2020 with its 20" square feed opening.

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THE IOWA LINE of Material Handling Equipment Includes:

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VIBRATOR AND REVOLVING SCREENS • UNITIZED ROCK AND GRAVEL PLANTS • FEEDERS
TRAPS • PORTABLE POWER CONVEYORS • PORTABLE STONE AND GRAVEL PLANTS
REDUCTION CRUSHERS • BATCH TYPE AND VOLUMETRIC TYPE ASPHALT PLANTS
HAMMERMILLS • DRAG SCRAPER TANKS • WASHING PLANTS • SOIL COMPACTION UNITS
STEEL TRUCKS AND TRAILERS • KUBIT IMPACT BREAKERS

Cedarapids

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PRODUCT!

IMPELLER IMPACT BREAKER

(formerly New Holland)

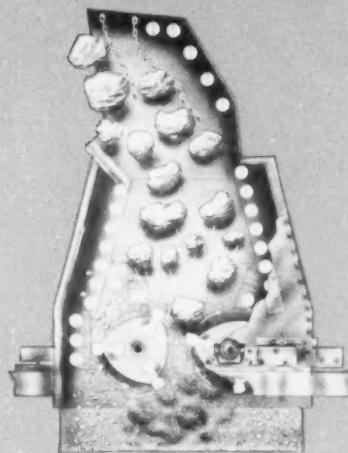
DOUBLE IMPACT ACTION GIVES YOU ALL THESE ADVANTAGES

★ MATERIAL entering the breaking chamber falls directly onto the rotating impellers. Rotating upward and outward at speeds up to 1000 rpm., these Double Impellers smash the material in mid-air. Up to 6000 smashing blows a minute crash against the material in the breaking chamber.

★ High percentage of fines can be obtained by operating the impellers up to 1000 rpm. with close bar settings, thereby eliminating need for secondary reduction equipment in many instances.

★ These breakers can be used for primary and secondary reduction depending upon the application and the model used.

★ Only two moving parts—the impellers—both easily accessible. Minimum down time for repairs or replacements because of simplicity of design.



Sectional view of Cedarapids Double Impeller Impact Breaker showing simplicity of construction and operation. Material falls directly onto impellers and is hurled against the breaker bars and other material in the breaking chamber.

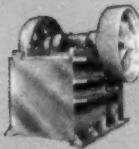
★ The product size is controlled by the speed of the impellers and the adjustment of the breaker bars. No mechanical change is necessary to change the size of product but simply increase or decrease the rpm.

★ Only Cedarapids Double Impeller Impact Breakers give you all those features. No imitation can equal their performance. Protected fully by patents. Beware of imitations.

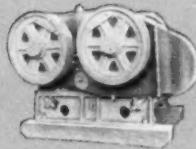
To Present Owners of New Holland Double Impeller Impact Breakers

When you need new equipment or replacement parts on your present machine address your inquiries to Cedar Rapids or call your nearest Cedarapids distributor.

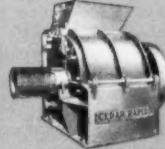
OTHER CEDARAPIDS CRUSHERS



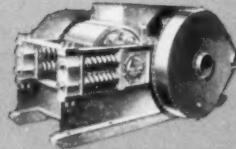
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in sizes from
32" x 40" to 6" x 12"



TWIN JAW CRUSHERS
in four sizes from
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HAMMER MILLS
in three sizes from
4032 to 2033



ROLL CRUSHERS
in six sizes from
4024 to 1616



KUBIT IMPACT BREAKERS
in four sizes
Nos. 0, 1, 3, 4

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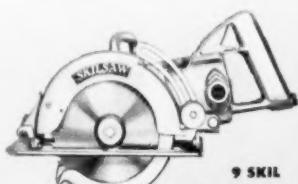
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Sidelights for Contractors

By John C. Hayes, Legal Adviser

Taxes

Depreciation.—By denying a taxpayer's petition for review of a recent lower court decision, the Supreme Court again has refused to reconsider its conclusion reached in 1943 in the Virginian Hotel Corporation case that the basis of property must be reduced for depreciation previously "allowed (but not less than the amount allowable)," although the depreciation taken by a taxpayer in earlier tax years was in excess of the amount allowable and resulted in no tax benefit.

Limited Partnership.—With some of its members dissenting, the Tax Court has rejected an attempt by the Commissioner of Internal Revenue to tax as a corporation a limited family partnership in the construction industry, or in the alternative, to tax the earnings only to the general partners. The court found that the limited partnership has been formed and was operated in strict compliance with state law, the participation by the limited partners was genuine, and the latter had unrestricted right to withdraw their profits.

Lease With Purchase Option.—On the often difficult question of whether payments made under a lease with option to purchase are deductible as rent or non-deductible as purchase payments, the Tax Court has formulated the following rule: "If payments are large enough to exceed the depreciation in value of the property and thus give the payor an equity in the property, it is less of a distortion of income to regard the payments as purchase price and allow depreciation on the property than to offset the entire payment against the income of one year."

Group Permanent Life Insurance Policies.—In the April issue of "Sidelights" there was noted a ruling by the Commissioner of Internal Revenue that premiums on group permanent life policies paid by employers constitute taxable income to the insured employees. This modified the Commissioner's general rule of long standing that premiums paid by an employer on group life insurance for em-

ployees are not income to the latter. The modification, which is effective as to premiums paid on or after July 1, 1950, apparently is intended to apply to insurance which provides employees with paid-up or other substantial values not supplied by term insurance. If rights to such insurance are forfeitable on separation from service, the insurance is not considered a permanent form when the premium is paid and the premium payment is not income to the employee. Group permanent life insurance premiums required to be included in employee income are subject to income tax withholding.

Account Receivable.—Where a partnership purchased from a predecessor partnership an account receivable, which subsequently was collected in full, a District Court held that gain realized thereon was taxable as ordinary income. Although the account receivable was a capital asset, there was no sale or exchange as necessary to come within the definition of a long term capital gain.

Reasonable Compensation.—Relying on the opinion of four qualified and disinterested witnesses who testified that the compensation paid the taxpayer's president was reasonable for the services he performed, the Tax Court sustained the deduction thereof by the corporation, notwithstanding the facts that such officer was the sole stockholder, no dividends had been paid, and gross sales had declined.

Public Contracts

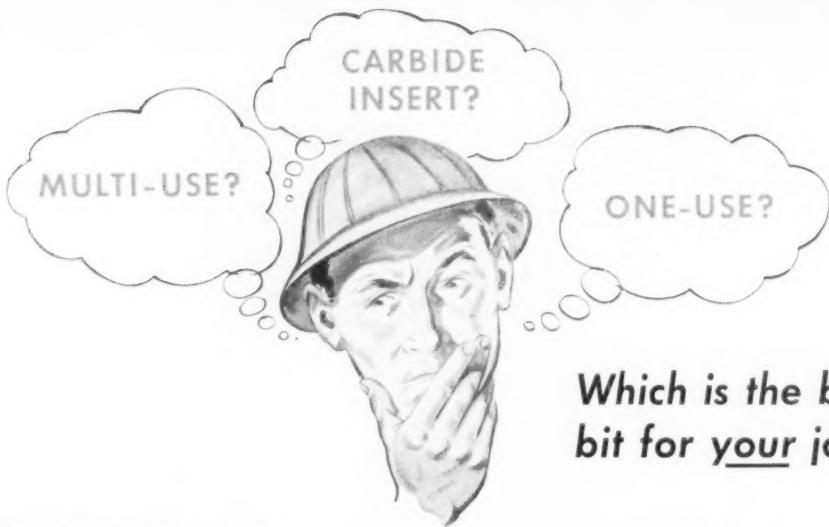
Disputes Clause (Article 15 of Standard Contract) Construed.—The Moorman case, decided by the United States Supreme Court on January 9, 1950, involving the conclusiveness of the findings of the contracting officer on the question of the interpretation of the contract and specifications, was distinguished by the Court of Claims in a recent decision involving the disputes clause of a contract (Article 15). The Court pointed out that different issues were involved in the two cases. In deciding the conclusiveness of the findings of the contracting officer on questions of fact under the disputes

clause of the contract (Article 15), it was pointed out that such findings were conclusive unless the evidence showed the contracting officer acted arbitrarily or capriciously or that his decision was so erroneous as to show bad faith. The contracting officer must act as an impartial, unbiased judge and not as a representative of one of the contracting parties. If he fails to do so, his decision may be set aside by the court. In considering whether or not the contracting officer has acted impartially, the court points out that it is proper to take into consideration any evidence of actual bias, the correctness of his findings, the relationship to the parties, the allegiance he avows, and his duties his employment by one of them casts upon him. (Further details on page 39.)

Contract Settlement.—The Office of Contract Settlement Appeal Board has adhered to the basic policy that reimbursable settlement expenses, under the Contract Settlement Act, do not include the expense of prosecuting an appeal from the contracting agency's decision to the Appeal Board, despite the fact that the appeal was taken in the instant case because of the agency's failure to make findings.

A second point decided by the board was that work by a government contractor performed several months after hostilities ended on V-J Day, in preparing war facilities for removal to other arsenals, was related to prosecution of the war, within the coverage of the Contract Settlement Act. For additional work of such nature performed without a formal contract, the contractor was held to be entitled to reasonable compensation.

Ambiguity in Bid Invitation.—For bidders to be able to compete on equal terms in submitting competitive bids in response to an advertisement for bids for public work, the Comptroller General states that the specifications and invitations must be sufficiently definite to permit the preparation and evaluation of bids on a common basis. An ambiguity as to required completion date, causing the high bidder to overestimate his costs, was held to warrant rejection of the bids received and invitation for new bids.



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The Award of Separate Contracts: What Is in the Public Interest?

Most of the national associations of specialty contractors in the construction industry are undertaking drives for state, and possibly federal, legislation to require the award of separate contracts for the mechanical work on building construction and public works.

The position of the A.G.C. was made clear at its convention held in San Francisco February 27 to March 2. A resolution was adopted which stated in part:

"One all-inclusive general contract should be awarded for construction of each project, or its major portions, so that advantage can be taken of the efficiency which can be achieved when complete responsibility and coordination is centralized in one competent organization."

Considerable discussion was held on this subject at the convention. Constant reference was made to the fact that one of the most important parts of the A.G.C. program, both locally and nationally, was toward the promotion of better relationships between all parts of the construction industry.

The philosophy which has guided A.G.C. work is that general contractors, architects, engineers, specialty contractors, materials and equipment manufacturers and dealers, workmen, surety underwriters, and all those who play a part in construction are members of a team working toward the objective of serving the owner by producing construction work more efficiently.

It is understandable in these days of intense competition in the industry that specialty contractors should consider seriously the profits, or lack of them, in their work. It is also a serious matter with general contractors who are finding many projects awarded at prices which appear to be below cost.

An important question arises, however. That is whether or not state or federal legislation will cure the problem with which specialty contractors believe that they are faced. A.G.C. opinion has been that it is the responsibility of an industry through its associations to apply all of its collective knowledge and ingenuity to the fair and equitable solution of problems, rather than seek legislation which frequently hampers the efficiency of industry operations.

Repeated reference in the discussions by general contractors has been made to the A.G.C. Code of Ethical Conduct, which provides for the fair and equitable treatment of specialty contractors. The code states:

"The operations of the contractor are made possible through the functioning of those agencies which furnish him with service or products, and in contracting with them he is rightfully obligated by the same principles of honor and fair dealing that he desires should govern the actions toward himself of architects, engineers and client owners.

"Ethical conduct with respect to subcontractors and those who supply materials requires that:

"1. Proposals should not be invited from anyone who is known to be unqualified to perform the proposed work or to render the proper service.

"2. The figures of one competitor shall not be made known to another before the award of the subcontract, nor should they be used by the contractor to secure a lower proposal from another bidder.

"3. The contract should preferably be awarded to the lowest bidder if he is qualified to perform the contract, but if the award is made to another bidder, it should be at the amount of the latter's bid.

"4. In no case should the low bidder be led to believe that a lower bid than his has been received.

"5. When the contractor has been paid by a client owner for work or material, he should make payment promptly, and in just proportion, to subcontractors and others."

A statement recommended by the National Joint Cooperative Committee of The American Institute of Architects and the A.G.C. was adopted by the convention as follows:

"The National Joint Cooperative Committee of The American Institute of Architects and The Associated General Contractors of America is strongly of the opinion that in the interests of the most efficient coordination of the work of construction the practice of awarding separate contracts, not under the control of the general contractor, leads to confusion and delay and should be discontinued.

"In the opinion of the committee such practice causes unnecessary delays in construction by depriving the general contractor of authority to coordinate all phases of the work and makes it practically impossible for him to maintain harmonious labor relations and prevent time consuming jurisdictional disputes, while imposing added burdens of coordination on the architect who is not ordinarily expected to assume this responsibility.

"The awarding of separate contracts may also result in the refusal of the general contractor to accept an ascertained and liquidated damage clause for delay in the completion of his contract.

"The committee is of the opinion that, where it is not possible to include all work under a single general contract, contracts separately awarded should be placed under the direction and control of the general contractor with appropriate compensation."

It seems to members of the A.G.C. that if there are things wrong in the industry, the problems can be solved better by cooperation of the parties concerned than by legislation which places added restrictions upon the industry. Cooperation aimed at improving the efficiency of the industry's operations is in the public interest.

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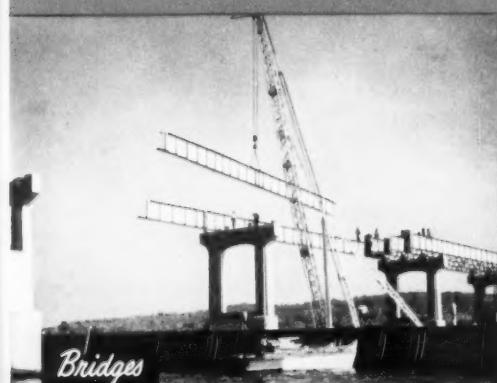
Of course, complete mechanical equipment in Allied's 3 plants lends wings to all fabrication operations.

Offers, too, cost-saving advantages interesting to those who contemplate building. Send your plans and specifications to us for estimating.



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Crews moved "super-fast" to fabricate and deliver steel on schedule for the Hinsdale, Ill., school.



Bridges

5000 Tons of steel were erected by Allied for this huge bridge at Peoria, Illinois.



Industrial Buildings

Casting plant of Aluminum Co. of America, Hillside, Ill. 2000 tons were fabricated and erected.



Air Line Pilots Headquarters

Allied's 3 plants, operating as one fabricator, turned out steel for this Chicago Air Line Pilot's Administration Building.



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» UPSETTING all predictions, the construction industry in April exceeded all previous records for that month in work volume put in place, preceded by a similar record for the first quarter of the year.

Both physical and dollar volume records were established during the first four months of this year as increasing private and public outlays brought total new construction to \$6.1 billion, on the basis of joint estimates of the Departments of Commerce and Labor.

At the same time, it was learned that government estimates of new construction this year and in the past will be revised substantially upward in the near future as the result of more complete information obtained by the agencies after prolonged study.

(The \$6.1 billion estimate for the first four months of 1950 is based on current methods, and does not include the more extensive data that will be published in June.)

While no official figures had been reached early this month, it was expected that the revisions, which will be made back to 1945, will show that the industry has been operating above the \$20 billion level in new construction for the past two years.

Large Revisions Slated

For 1949, revised estimates of new construction will show perhaps \$22 billion, which is above The Associated General Contractors of America's estimate of around \$20 billion, derived by roughly estimating work which has not been included in government estimates, such as that of the Atomic Energy Commission (February CONSTRUCTOR, page 23).

Revisions to the government estimates, reached after a consultation among the Departments of Commerce and Labor, the Bureau of the Budget, and others, are expected to add architectural and engineering fees, and other preliminary costs.

Other revisions are expected to include:

The CONSTRUCTOR's cover graph, and several of the Constructographs will be adjusted in the June issue to take into consideration the revisions in construction volume figures to be announced by the Departments of Commerce and Labor.

Construction Activity Breaking All Previous Volume Records

- First Four Months Set New Physical, Dollar High
- Residential Types Spearheading Spring Spurt

Estimates for the big atomic energy construction program, which are being made available to government statisticians for the first time,

Farm construction, which will be marked up greatly as the result of a survey by the Bureau of Agricultural Economics.

Major additions, alterations, and conversions to private residential buildings, privately owned water and sewer systems, some public and privately owned toll roads and bridges, park and playground construction and non-federal conservation and development work prior to 1946.

Winter Building Highest

Estimates for these types of construction have not heretofore been available.

The spring spurt in construction came on top of a record level of winter

activity throughout the country as the amount of new work performed surpassed all previous records of mid-winter construction volume, including war construction during the winter of 1944-45.

Residential construction spearheaded the peak activity, with both March and April, successively, being recorded by the Bureau of Labor Statistics as "the best homebuilding month in history."

In March, BLS estimated, 110,000 new nonfarm dwelling units were placed under construction, estimated at \$620 million, five per cent above February, 1950, and 18 per cent above March 1949.

While the unit count was not yet available, April residential construction was valued at \$720 million, 11 per cent over March, and 62 per cent above April a year ago.



Contraseasonal construction activity was at the highest level in history this winter. Here, an unusual winter enclosure is shown in use by The Weitz Company, Inc., A.G.C., Des Moines, Iowa, in the construction of a downtown building. As work was completed on one floor, the enclosure was hoisted to the next. Transparent slots in the enclosure admitted daylight.

While both private and public construction was increasing, over-all private nonresidential did not share in the upswing.

Factories, store and office buildings, and warehouses held at about the same level in April as in March, but was somewhat below 1949. Industrial building outlays were 21 per cent lower than last year in April, and were 30 per cent less during the first four months of 1950 than for the same 1949 period.

Private hospital construction expenditures, however, were more than double those of a year ago.

While public expenditures rose seasonally for schools, hospitals and other nonresidential building, highway construction outlays rose by 38 per cent in April and were 10 per cent ahead of a year ago.

Value of conservation and development work was up 20 per cent over the month, and seven per cent ahead of a year ago.

Records also were being broken in contract awards reported by the F. W. Dodge Corporation.

Observers See Improved Business Outlook

• Some Reversal from Dismal Year-End Forecasts

» WITH AN April volume of construction put in place exceeding all previous records, preceded by the largest first quarter record in history, the construction industry is in the advance line of a wave of optimism as to the business prospects for the remainder of the year.

The alarmed tenor of private and government economists, who during the fall and winter had foreseen the likelihood of a dark outlook for business, generally has either reversed or softened—with exceptions such as views on deficit spending by the government.

A typical government outlook was expressed by Secretary of Commerce Charles Sawyer, who last month saw "excellent" prospects for business during the latter half of the year. He added that no specific level of unemployment should be designated a "danger point," since much harm could be done if business and the public were

apprehensive at reaching the supposed "danger point."

Meanwhile, although the Census Bureau reported steadily decreasing unemployment figures, the Congress of Industrial Organizations took a dimmer view of the situation, calling for immediate federal aid to areas where unemployment is greatest, with increased public works as a central part of its proposed program.

Business to Spend Less

While American business' capital outlays continue high, each major industry group expects to spend less on new plant and equipment this year than during 1949, according to the latest survey of the Securities and Exchange Commission and the Department of Commerce.

However, the agencies coupled their estimate of an 11 per cent decline in such expenditures with the observation that "The actual decline in the second half of this year, on the basis of past experience, may be smaller than indicated since there is some tendency for companies to underestimate their plant and equipment expenditures over the longer term."

Investment in the first half of the year is expected to decline eight per cent below the first half of 1949, and the last half by 14 per cent below the corresponding period. Total expenditures for the year are estimated at \$16.1 billion, compared with \$18.1 billion in 1949 and \$19.2 billion in the peak year 1948.

Anticipated expenditures for each group, compared with 1949 actual expenditures, follow:

Electric and gas utilities, down to \$2.9 billion from \$3.1 billion.

Manufacturing, \$6.7 billion from \$7.2 billion.

Mining, \$650 million from \$740 million.

Railroads, \$930 million from \$1.4 billion.

Other transportation, \$350 million from \$520 million.

Commercial, communication and other industries, \$4.5 billion from \$5.1 billion.

Plant construction in 1949 made up about 30 per cent of total expenditures for plant and equipment.



Walnut Lane Bridge Taking Shape

The prestressed concrete bridge under construction in Philadelphia by the Henry W. Horst Co., A.G.C., begins to take shape as four partly-completed prestressed concrete girders rest in temporary positions atop their piers. The two girders in the background

across the center span are 139 feet, eight inches long, and approach beams are 73 feet, 10 inches long. Slated for completion this summer, the project attracted wide attention when a "test to failure" was conducted on one of the prestressed concrete girders.



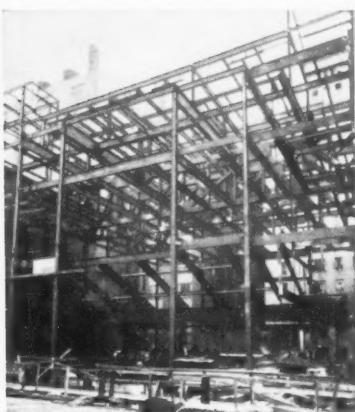
THE CONGREGATIONAL CHURCH OF MANHASSET, Manhasset, New York. Fabricated and erected by American Bridge Company. This 222-ton structure consists of: church proper—45' x 130', chapel—22' x 80', Minister's study—25' x 25', parish hall—45' x 95', school wing—42' x 105', and beginners' wing—35' x 80'. Architects—Magoun and Salo. Consulting Engineers—Wilcox and Erickson.



THE MOUNT OLIVET LUTHERAN CHURCH, 50th and James Avenue, South, Minneapolis, Minnesota. Fabricated by American Bridge Company. One hundred fifty tons of structural steel was furnished for this structure. Architect—Hugo C. Hauser.

*For
sanctuaries, too~*

**A FRAMEWORK
OF STEEL**



THE FREE SYNAGOGUE, 30 West 68th Street, New York City. Fabricated and erected by American Bridge Company. This 500-ton, 3-story building, with balcony framing is 99' x 100'. Architects—Bloch and Hesse. Engineer—A. D. Grossett.



THE HOLY ANGELS CHURCH, Gary, Indiana. Fabricated and erected by American Bridge Company. This church building, 100' x 36', has two wings 28' x 39' and one fleche. One hundred thirty tons of structural steel comprised the framework of this structure. Architect—A. F. Moratz.

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Ten Years Ago...

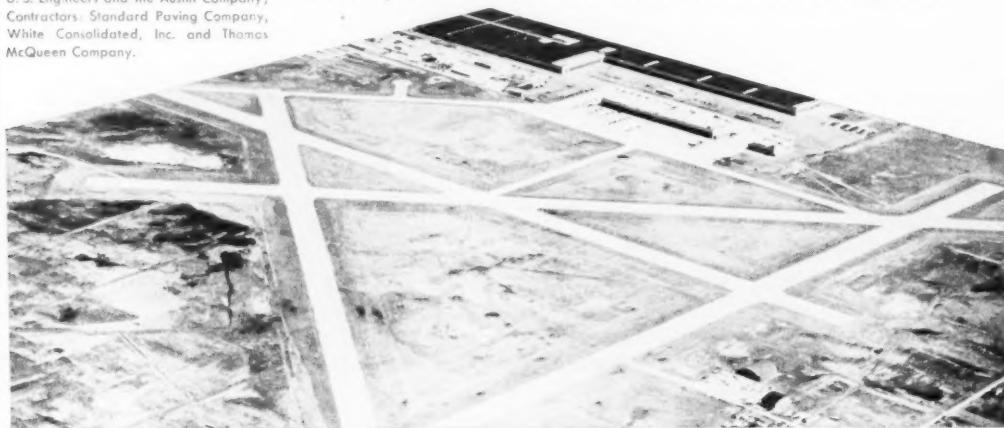
In August, 1939, this concrete test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, *laid at the same time*, was made with Atlas Duraplastic—the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of ten Minneapolis winters and to heavy applications of de-icing salts, are shown just as they appeared in July, 1949—convincing proof of the characteristic durability of Duraplastic concrete, of its high resistance to freezing-thawing weather and the scaling action of de-icing salts. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.



For example: O'Hare Field (formerly Douglas Airport), Park Ridge, Ill. Duraplastic used exclusively. Placed 1942-43. Despite heavy traffic of war and peace... and the rigors of seven tough winters... paving remains durable and highly scale-resistant. Designed and supervised by U.S. Engineers and the Austin Company; Contractors: Standard Paving Company, White Consolidated, Inc. and Thomas McQueen Company.

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At no extra cost because Duraplastic sells at the same price as regular cement; calls for no additional materials, no unusual changes in procedure. Duraplastic provides the proper amount of entrained air by intergrinding with the cement the precise amount of air-entraining agent needed for satisfactory field performance. It complies with ASTM and Federal Specifications. Send for NEW FREE BOOKLET, "A Decade of Atlas Duraplastic Air-Entraining Portland Cement." Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

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*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

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» CONTINUED LIMITATION on the amount of funds the Bureau of Reclamation can spend for force account construction operations was recommended by The Associated General Contractors of America to a Senate appropriations subcommittee on April 17.

The House Appropriations Committee reported H.R. 7786, the General Appropriation Bill, 1951, without the limitation. By early May the House had not yet come to the Interior Department section of the overall appropriation bill for the fiscal year starting July 1. There was the possibility that the House would restore a limitation on Bureau of Reclamation force account operations.

The Senate Interior Department appropriation subcommittee held hearings before the bill actually had been passed by the House. Managing Director H. E. Foreman appeared on behalf of the A.G.C. and again recommended that the appropriation contain this limitation. It was expected that if the House did not make such an amendment, the Senate committee would.

Slow Action May Delay Appropriations

- House Committee Cuts Engineers' Funds 25 Per Cent

The possibility became evident this month that federal appropriations, including funds for public works construction, may not become available on July 1 when the 1951 fiscal year begins.

As an experiment, the House Appropriations Committee on March 21 reported H.R. 7786, known as the General Appropriation Bill, 1951. This lumps into one bill appropriations formerly made in 10 bills. The over-all bill would appropriate approximately \$29 billion.

By the end of April, after three weeks of debate, the House had disposed of items for about one-tenth of the funds. After eventual passage by the House the bill must go to the Senate where unlimited debate is possible. Then the differences must be adjusted in conference, and approved by both houses, before the bill goes to the White House.

House Cuts Listed

As the bill was reported by the House, most items were cut below recommendations of the Budget Bu-

Force Account Limit Again Sought on Reclamation Jobs

- A.G.C. Testimony Cites Effectiveness of Curb
- Favorable Action by Senate Group Expected

As reported to the House, the bill appropriates \$297,467,000 for construction by the Bureau of Reclamation, an 11 per cent reduction from the \$320,521,500 recommended by the President.

A.G.C. Testimony

In his testimony, Mr. Foreman reported that the first force account limitation had been placed in the appropriation for the fiscal year started July 1, 1947, and a restriction had been retained in each subsequent reclamation appropriation.

To illustrate effectiveness of the limitation, Mr. Foreman stated that the Secretary of the Interior had announced that in the 1949 fiscal year the amount of construction undertaken

by the Bureau of Reclamation by force account had been \$5,741,000, or 2.6 per cent of the year's \$217,000,000 construction program.

He pointed out that the year's construction program was the largest in the Bureau's history, and the volume of work executed by force account was the fourth largest in history. The peak in dollar volume of force account activity was \$12,800,000 in the fiscal year before the limitation first went into effect.

Prefer Original Limitation

Mr. Foreman stated that the general contracting industry would prefer the language originally used which prohibited force account operations except for management and operation, maintenance and repairs, engineering and supervision, routine minor construction and in case of certain emergencies.

He stated that the industry recognizes that most legislation represents a compromise, but could see no reason why more than eight per cent or \$200,000 per project would be needed for force account operations.

After referring to the keen competition in the industry, Mr. Foreman concluded: "It is good business for the government to take advantage of this exceptionally keen competition which is prevailing and is expected to prevail in the general contracting industry."

In testifying, he reaffirmed the statements made the previous year by George H. Atkinson, of the Guy F. Atkinson Co., San Francisco, and Lyman D. Wilbur, Morrison Knudsen Company, Boise, Idaho.

Military Housing Bill Passed

The President early in May was expected to sign a bill, H.R. 7846, which would amend Title VIII of the National Housing Act, for housing adjacent to military installations to permit the military to have plans and specifications drawn so that all bidders would bid on the same basis.

Principal Provisions of the New Housing Act

• Revises Loan Aids Upward, Aims at Increasing Rental Units

» THE HOUSING Act of 1950 (P.L. 475) which was approved by the President on April 20, revises and expands some important federal housing aids.

Title I, section 8, broadens Federal Housing Administration insurance of small homes in suburban areas. For loans up to \$4,750 for owner-occupants the FHA will insure 95 per cent of the value, and is authorized to allow increases up to \$5,600 in high cost areas. For builders the loan limits are \$4,250 to \$5,000 with the FHA insuring 85 per cent of the value. The loan term has been extended from 20 to 30 years with a maximum interest of five per cent.

Permanent FHA insurance for rental housing is provided allowing \$8,100 insurance on a loan of \$10,000 for one unit. But, where the law previously protected 90 per cent of a \$9,000 loan, it now authorizes the FHA to insure 90 per cent of a \$7,000 loan along with 60 per cent of an additional \$3,000. This change is intended to promote construction of low-cost rental units. To obtain maximum mortgage loans, a rental project must have an average of 1½ rooms per unit.

Section 611, which authorizes FHA

to insure construction advances for single-family housing projects of 25 units or more, is revised to authorize insurance for four per cent loans up to \$5,950 per unit, or not more than 85 per cent of value, with increases of \$850 each for a third and fourth bedroom.

For veterans, the Veterans Administration may now guarantee loans up to 60 per cent of value but not more than \$7,500, instead of the 50 per cent and \$4,000 as before. If a veteran is unable to obtain four per cent private financing, the Veterans Administrator, out of a fund of \$150 million, may lend him as much as \$10,000. The act not only provides for the termination of combination GI-FHA loans, effective December 31, 1950, but also empowers VA to terminate them sooner if the administrator desires.

For one- to four-family units, detached or not, section 203 of the new act provides 80 per cent insurance of appraised values not exceeding \$16,000. This limitation may be increased by \$4,500 for each additional family unit in excess of two. The term of insurance is now 30 years. Section 203 is designed to increase construction of low-cost units for large families.

Two Federal Aid Highway Bills Pending

• Whittington Measure Reported Favorably by House Committee

The House Public Works Committee on April 5 reported favorably H.R. 7941, by Chairman Whittington (D. Miss.), which authorizes a total of \$615.5 million for each of the fiscal years ending June 30, 1952 and 1953.

Of this, \$500 million annually is for federal aid as follows:

Primary system, \$225 million; secondary system, \$150 million; urban areas, \$125 million.

In most respects the bill follows the pattern of current federal aid legislation with the exception that \$70 million is authorized for construction on the National System of Interstate Highways, to be matched on the basis of 75 per cent by the federal government, and 25 per cent by the states.

The Associated General Contractors of America has testified in support of

highway legislation, and recommended that construction be by contract. (April CONSTRUCTOR, page 86).

Chairman Chavez (D. N.Mex.) of the Senate Public Works Committee on April 14 introduced S. 3424 which would authorize \$970 million for each of the fiscal years. Of this amount \$550 million is for federal aid.

One way in which this differs from the House bill is that \$100 million would be authorized for work on the National System of Interstate Highways but on a 50-50 matching basis.

The bill also would authorize \$75 million annually for rural roads to be matched on the basis of 40 per cent by federal funds, 25 per cent by state funds, and 35 per cent by county funds, with the Bureau of Public Roads having little control over funds.

Omnibus Bill Agreement

Congressional conferees have agreed upon a flood control and rivers and harbors bill, H. R. 5472, authorizing \$1,730,251,825.

The bill had been passed by the House in 1949, and by the Senate on April 17. By May 1 the conferees had adjusted the differences and the conference report awaited final action before the bill was sent to the White House.

Totals in the bill were:

Rivers and harbors	\$203,723,125
Flood control	\$1,279,870,200
Irrigation projects	\$200 million
Soil conservation	\$19 million
Surveys	\$10 million

The previous comprehensive river and harbor and flood control authorization was passed in 1946. Progress in these programs has been rapid since the end of World War II and the present bill is designed to provide the authorizations necessary to continue construction programs in an orderly manner.

Airport Time Extension

Extension of the time during which federal aid funds for the construction of airports shall remain available for matching by the states and local governments was recommended by The Associated General Contractors of America in public hearings April 27.

B. L. Knowles, of the AGC national staff, testified in support of S. 2875, introduced by Senator McCarran (D. Nev.), which would extend the time of the Federal Airport Act from seven to 12 years, with funds remaining available until June 30, 1958. No additional funds are authorized.

'Basing Point' Delayed

After additional debate, the Senate early in April again delayed action on the compromise legislation to legalize the delivered price (basing point) system which House and Senate conferees had agreed upon and the House had approved last year.

It was expected that unless the bill could again be brought to the Senate floor early in May before the Fair Employment Practices Bill debate started, no further action was likely to be taken during this session.

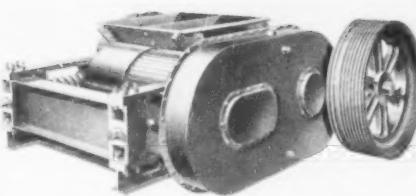
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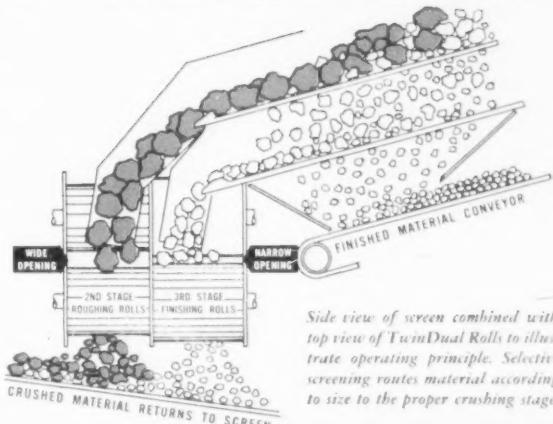
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- 5 Finished material removed before and after each of the three crushing stages increases production. Selective screening routes oversize to the proper crusher.
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Side view of screen combined with top view of TwinDual Rolls to illustrate operating principle. Selective screening routes material according to size to the proper crushing stage.

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Four Years of Major Work Without a Critical Accident

- Denver Engineers' District Compiles Remarkable Record

By Harry L. Highland

Denver District Safety Engineer

» THE SUPERSTITIOUS myth that one workman will be accidentally killed for each million dollars of construction cost has been effectively refuted by the Denver District, Corps of Engineers.

Four years of major construction, including such hazardous operations as completion of a multi-million dollar rolled earth dam, construction of various types of military installations, housing, conversion and demolition of posts, camps and surplus facilities, Veterans Administration hospital and National Guard construction, decontamination of bombing ranges, plus a variety of other activities—without a fatal or critical accidental injury! That's the remarkable record of this federal installation.

During the four-year period the Denver District Engineers and respective contractors operating under the supervision of this installation accomplished more than \$25,000,000 worth of construction. Approximately 5½ million man-hours were worked. The accidental injury experience for the above period reads as follows: Frequency rate (the number of disabling injuries per each million man-hours worked) = 5.84. Severity rate (the number of days lost due to injury per 1,000 days worked) = 0.21.

A comparison between the above figures and those for the nationwide construction industry, as published in "Accident Facts," by the National Safety Council, underscores the humane dividends earned by the Denver

District's accident control investment. The national rate is: Frequency 16.51; severity 2.51. In addition—and this is extremely important from an economic standpoint—property damage and other accidents which adversely affect profits and production schedules, were proportionately reduced.

How It Was Done

In answer to the question, "How was this record achieved?" we could simply say: "Through detailed planning—and the effective application of the plan."

Such a general statement is meaningless. However, there is nothing magical about safety. It cannot be obtained through administering a small dose of accident consciousness to each employee—in capsule form. Neither can accident-free construction become a reality through the half hearted efforts of a swivel chair safety expert who devotes his time and effort to outlining page after page of impractical "do's and don'ts," published in a baseball-size manual under the heading of Safety Rules, to be "thrown" at construction men.

Perhaps that has a comical flavor, although all will agree there's nothing comical about being subjected to such half baked attempts to force intelligent people to buy that type of program.

The accident control policy of the Denver District is based on the conviction that all employees, both government and contract, are entitled to the safest possible environment in which to earn their wages. Death by accident is a term with which all have become very familiar in recent years. Not only does it preclude emotions similar to those occasioned by the natural expiration of a human life, but it also leaves us with the feeling that victims have been cheated of their rightful chance to accomplish the full purpose of this earthly existence. The safety program which is not cognizant of this humanitarian element is foredoomed to failure.

Safety Definitions

In defining the term "Advance Planning for Accident Control" as developed within the Denver District, it is necessary to determine two factors. First, what is meant by the term "accident?" Second, is there a dividing line separating safety engineering from accident prevention? We define the term "accident" as follows:

"An accident is any unplanned or



The Denver District has achieved the best safety record among the five districts of the Missouri River Division for four consecutive years. Above, Brigadier General S. D. Sturgis, Jr., Missouri River Division Engineer, is shown presenting the 1948 award to the District Engineer, Lieutenant Colonel L. J. Lincoln. Left to right at the ceremony: Orval Robinson, vice chairman, Federal Safety Council of Denver; Harry L. Highland, district safety engineer; Colonel Lincoln and General Sturgis; A. A. Matthews, chief of the district's engineering division; Earle W. Devalon, managing director, Colorado Contractors Association, Inc., a chapter of The Associated General Contractors of America; and H. M. Leppich, chief, operations division, Denver District.

unforeseen incident resulting in personal injury, property or equipment damage, or delay in normal operations." As for the second item, the following explanation was given by Major General Lewis A. Pick, Chief of Engineers: "Safety engineering is the act of applying certain controls to planning, designing, and operating procedures. Accident prevention is the physical act of preventing accidents."

Those definitions are the "guide specifications" for the Denver District accident control program. The first defines the scope of the job. The latter clearly designates how it shall be developed and personnel responsible for each of the two categories, planning and jobsite application.

Planning for Prevention

In the first place, if management is not absolutely sold on the value of safety, the best accident control program in the world is predestined to failure. This isn't merely an original theory—it's a proven fact.

Within the Denver District, or the entire Corps of Engineers for that matter, we are fortunate in having the type of officers and administrative personnel who place a high priority on safety. That statement is not made with the idea of flattering anyone. It's the truth.

It also eliminates the possibility of using "lack of management interest" as an alibi behind which to hide, when an unsatisfactory accident experience is achieved. Within the Denver District, three of the most aggressive exponents of practical accident prevention are the district engineer, the chief of operations, and the chief of the engineering division.

In considering the first elements listed by General Pick in his definition of "Safety Engineering, the act of applying certain controls to planning, designing and operating procedures," it was found advisable to divide this into two distinct although related phases—initial and secondary planning.

The first is synchronized with preparation of plans and specifications for respective projects, to a degree sufficient to insure its integration into all allied activities. In order to perform such planning effectively, it is essential that a thorough study as to accident causes experienced on similar projects be made by competent personnel. This must include due con-

sideration of all conditions and circumstances common to the type of construction involved, plus the inclusion of practical remedial measures.

The initial development of accident controls involves incorporation of approved codes, standards and accepted engineering techniques in all plans prepared for the guidance of operational personnel at the jobsite.

Conference with Contractor

While safety engineers have a direct responsibility for this activity, the numerous diversified elements to be considered emphasize the fact that all units of the district engineering staff must cooperate in developing this portion of the program. It is not a one-man responsibility.

The secondary phase of planning as practiced within this installation is in reality a guide or outlined summation of various items, determined through previously mentioned studies, for the benefit of operational personnel responsible for "the physical act of preventing accidents." Here's how it is used:

Immediately following awarding of the contract, and approval by higher authority, the successful bidder is invited into the office of the district engineer for an informal discussion on the subject of accident prevention. Mandatory requirements of the office, Chief of Engineers, with which the contractor has agreed to comply, are called to his attention.

In addition the district engineer points out the many benefits, both humane and economic, available through practical accident controls. Special emphasis is placed on the joint moral obligation of the Corps of Engineers and respective contractors for eliminating operational hazards.

Project-Level Policy

The above described indoctrination procedure is followed through at the project level by the resident engineer who, upon arrival of key contract and government personnel, calls an accident control or planning session.

Topics discussed at this time include, but are not limited to, those outlined in the "Guide Plan" previously developed. Each item is considered and methods of compliance therewith decided upon. In addition, regular weekly sessions are scheduled for the purpose of "gearing" the project safety program to specific jobsite needs as determined by nature of work

to be performed in the immediate future.

The type of planned prevention described above, when used as a supplement to the official Safety Requirement Manual, published by the Office, Chief of Engineers, and included as a mandatory provision of each Corps of Engineers and contract operation, will guarantee satisfactory results—if adhered to and carried out continually.

The problem of safety education is accepted as a must in the Denver District. Experience has proved that it cannot be obtained through legislation or issuance of orders in which the employee is directed to accept and discharge accident prevention responsibilities.

Monthly "Know-How" Sessions

The physical act of preventing accidents, through compliance with or enforcement of safety requirements, guides, codes and standards, is now delegated to field personnel. However, such responsibility cannot be effectively discharged until those concerned are taught, not only *what* those duties consist of, but *how* they should be discharged.

This "know-how" portion of the program is handled in the following manner within the Denver District:

Once each month a conference session is held in the district office. All supervisory personnel, from the district engineer on down the line, including field inspectors, attend. A specific subject related to accident prevention is selected well in advance of each round table conference. The district safety engineer, who acts as moderator, contacts various conferences some two or three weeks before each session and requests each to study and be prepared to express their ideas on a particular topic related to the scheduled subject.

In this manner the many diversified accident prevention problems are dealt with. Conclusions reached by the conference group are later mimeographed and distributed. They represent the Denver District's "prevention" policy.

The practical value of this democratic method which permits those concerned with "the physical act of preventing accidents" to develop their own methods of accomplishing that assigned duty, cannot be over-emphasized.

The final policy thus determined will, if properly guided by the conference leader, reflect and include all

factors pre-selected as essential to the field level program. In addition, this type of learning effectively eliminates that feeling of "aversion to safety education" developed as a result of obsolete, tailor-made or "canned" training courses which many were forced to attend. We feel this activity is the logical solution to a problem that has long been a bone of contention. This conference method is also adaptable to any type of organization.

Contractors Who Made It Possible

The following construction organizations operating under the jurisdiction of the Denver District are to be commended for their effective execution of accident prevention programs, without which the four-year, no-fatality record of this installation could never have been attained.

Only organizations accomplishing work in the amount of \$50,000 or more during the past four calendar years are listed below:

Associated Constructors, Denver.
Guy F. Atkinson Company, doing business as Willamette Iron & Steel Company, Portland, Oregon.
Colorado Interstate Gas Company, Colorado Springs, Colorado.
Jack H. Cys Construction Company, Denver.
Denver Builders, Inc., Denver.
Denver Plumbing & Heating Company, Denver.
Gasland Company, Inc., Denver.
David G. Gordon and Bressi and Bevanda Construction, Inc., Denver.
W. T. Hedgecock, Denver.
E. L. Hobbs, Denver.
Industrial Constructors, Denver.
Al Johnson Construction Company, Minneapolis, Minnesota.
James B. Kenney, Inc., Denver.
J. D. Leftwich Contractors, Inc., Lubbock, Texas.
N. R. Nielsen & Son, Denver.
Northwestern Engineering Company, Denver.
G. L. Odel Construction Company, Denver.
Olson Construction Company, Lincoln, Nebraska.
Spillane Construction Company, Denver.
Stearns-Roger Manufacturing Company, Denver.
Van Winkle Construction Company, Denver.
Raymond C. Whitlock, Colorado Springs, Colorado.

What Accidents Do to Me

By George A. Benish

Manager, Milwaukee Chapter, The Associated General Contractors of America

(Editor's Note: Condensed from an address before the Midwest Safety Conference.)

» AS THE KEY man in the progress of a job, the construction superintendent is justly proud of his rank and title, but the adverse effect of a bad accident experience can rob the work of its satisfactions and may ruin his reputation.

No safety engineers are employed on the majority of construction projects, so the responsibility for accident prevention rests with the superintendent.

The superintendent must be active directly or indirectly in safety measures as required for the particular job. He may not be held responsible for all schedules if the factors involved are beyond his control. But he is responsible for the safety of all the men and must remember today's axiom: *There is no alibi for accidents.*

We all know why the ironworkers shut down their jobs after a serious accident. The men become demoralized. And so it is with all men; they are all affected. Job schedules are disrupted, and no one knows when operations will be normal.

The superintendent bears the brunt of the disorganization that follows. He knows that his men are affected, their efficiency is reduced, and all job costs greatly increased.

He realizes that the prestige he enjoyed is now challenged, not only by the men, but by the architect, owner, and employer. In fact, he may even lose confidence in himself.

Every day he goes by the scene of the accident and he is jarred mentally. Why wasn't this or that done to avert the cause? Any number of questions travel through his mind.

Just how long after an accident the job begins to regain its normal operation is difficult to say.

A superintendent just can't escape the moral responsibility for the safety of his men. It is for this reason that great improvement has been made in accident prevention work.

The superintendent today is more safety conscious. He dreads to face the reaction heaped upon his job because of negligence of safety.

I would like to cite a case from my

own experience. I had received the highest compliment for safety on a job well done on the construction of a large administration building. The project was approximately 90 per cent completed, except for a few remaining items which were considered accident-proof. Yet one of the jobs to be completed resulted in the one casualty for the entire project. My record was marred.

To this day, when I go by the building, I still remember very vividly the one man who lost his life, even though the responsibility could not be placed upon supervision.

Another superintendent reported a project completed without any serious accidents, but while the sheds were being moved from the completed project, one of the workmen suffered a crushed leg, which had to be amputated.

Those cases may seem unusual, yet they should serve as illustrations of the fact that we should be constantly vigilant in our safety programs.

Pennsylvania Program

The board of governors of the Pennsylvania Builders Chapter, A.G.C., whose membership includes builders in 51 counties in the state, has endorsed an intensified emphasis on safety work, with an industrywide accident prevention program outlined by George M. Schmitzler of Harrisburg, the chapter's executive secretary.

The board endorsed expanding the emphasis on safety after the individual programs initiated by H. B. Alexander & Son, Inc., A.G.C., Harrisburg, and R. S. Noonan, Inc., A.G.C., York, had been reviewed.

Edgar R. Shenk, president of the Henry Shenk Company, Erie, was winner of the H. B. Alexander Trophy in the chapter's accident prevention contest. This company was one of four in the chapter which had perfect safety records during the 1949 contest year.

When working against time . . .



Illustrated is a 600 cu. ft. portable air compressor powered by a 150 H.P. Murphy Diesel.

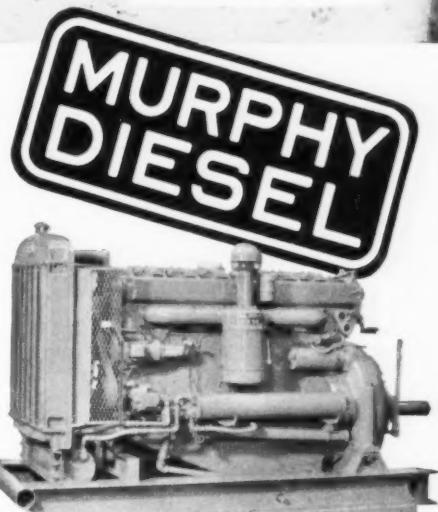
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dependability
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RELIABILITY with a minimum of down time is one of the most important factors in making a job profitable. And that's the kind of power you get with Murphy Diesels. Instantaneous starting, at over 100° or below zero, puts Murphy Diesels on the job immediately. Simple design and heavy duty construction enables them to stay on the job longer.

Murphy Diesel dependability plus fuel economy that is unmatched by any other engine of comparable power, gives you the kind of power that pays off in lower costs and bigger profits. Check up now, and find out what Murphy Diesel Power can do for you. Call your Murphy Diesel Dealer or write direct.

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*Heavy duty
power*

for construction

Murphy Diesel Engines and Power
Units for construction, 90 to 220
H.P. Generator Sets, 60 to 133 K.W.



Countryside Today...



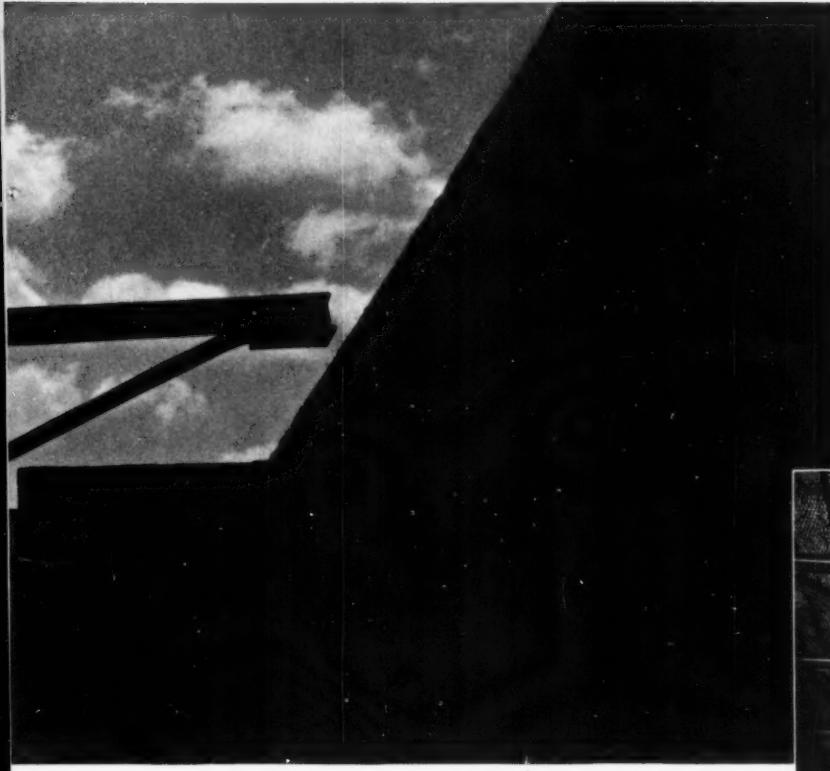
When Speed is the Need...Use CECO

One day you pass a new development in the making, ground is broken, home foundations are in. Then, in just a short, short time, where once there was open countryside, a whole community, spick-and-span new, "has sprung up overnight." Chances are the stores, the school, the theatre . . . yes, most of the light occupancy buildings . . . were constructed with Open-Web Steel Joists. For that is the fastest way ever to build. There's no temporary formwork necessary . . . nothing to take down later on. Open-Web Steel Joists are self-centering . . . are placed on the wall structure and right away rib lath can be laid and concrete poured to form the floor. And while all this is going on, other building

**CECO
STEEL**

In construction products CECO ENGINEERING

a Community Tomorrow



Economical — Ceco Open-Web Steel Joists are self-centering. The form work for the concrete slab—usually metal rib lath or steeltex—rests directly on the steel joists without other support from the underside.



Open-Web Steel Joists

trades can be on the job doing their special work such as installing steel windows, electric wiring, plumbing and heating. So, when speed gets the call, specify CECO OPEN-WEB STEEL JOISTS. They are fabricated to exact size in the factory, come to the job tagged, ready to install...provide low cost fire resistive buildings. Ceco assures you fast service from five plants: Birmingham, Chicago, Houston, New York and Wheeling, W. Va.

CECO STEEL PRODUCTS CORPORATION

General Offices: 5601 West 26th Street, Chicago 50, Illinois

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Conceals Conduits—Ceco Open-Web Steel Joists provide a ready means of concealing ducts, wiring and piping. Space is saved by direct attachment of ceilings to joists. Time and materials are saved, too.



makes the big difference

Close Vote Expected on Plan to Abolish Denham's Office

• Taft Optimistic After Committee Disapproval

» A CLOSE vote on the President's proposal to abolish the Office of General Counsel of the National Labor Relations Board was expected in the Senate early this month.

The Reorganization Plan No. 12 presented to Congress by the President in March (April CONSTRUCTOR, page 62) would transfer to the chairman of the board the functions now performed by the office of Robert N. Denham.

The Senate Committee on Expenditures in Executive Departments on April 24 reported favorably the resolution, S. Res. 248, sponsored by Senator Taft (R. Ohio) which would disapprove the plan. Previously the House committee had voted, along party lines, to oppose a similar House resolution and thereby approve the President's plan.

The reorganization plan can be killed by the adverse vote of a constitutional majority of either house. By early May Senator Taft was reported as optimistic that his resolution would be adopted. One difficulty may be in securing the necessary quorum.

In another plan, Reorganization Plan No. 14, the Secretary of Labor would be authorized to coordinate the enforcement of the various statutes relating to labor standards on federal or federal aid construction projects, including the Davis-Bacon wage pre-determinations.

By late April no resolutions had been offered in Congress to disapprove the plan, so it appeared likely that it would go into effect.

Opposition was developing to Reorganization Plan No. 6, which would transfer to the Secretary of Labor "all functions of all other officers of the Department of Labor and of all agencies and employees of such Department."

The point raised by some business groups was that this places the administrator of the wage-hour law entirely under the Secretary, while these groups have felt that the administrator should be independent. The House committee, however, has reported unfavorably a resolution which would kill the plan.

The majority of the Senate commit-

tee outlined their reasons for rejecting the President's plan to abolish the independent office of NLRB General Counsel by stating that the plan, among other things:

Repudiates a policy overwhelmingly expressed by Congress in 1947.

Would destroy public confidence in the impartiality of the administration of laws regulating labor-management relations.

Would return the NLRB to the discredited role of grand jury, prosecutor, and judge.

Is defective in that it fails to specifically provide where the most important functions of the General Counsel are to be lodged.

Goes beyond the Hoover Commission's recommendations affecting the Government's regulatory agencies. The Hoover Commission made no specific recommendation about NLRB.

Provides no satisfactory remedy for the alleged deficiencies in the present law such as questions relating to jurisdiction, appointment of personnel, and appeals from refusal to issue unfair labor practice complaints.

Recent Decisions Affecting Construction

Reported by A.G.C. Labor Relations Staff

1. U.S. Court of Appeals Upholds Taft-Hartley Ban on Secondary Boycotts in House Remodeling Job.

In the first such appeal affecting construction, the NLRB recently sought enforcement by the Sixth Circuit Court of Appeals of an NLRB cease and desist order against the A. F. of L. Carpenters' Union. The Union had been found guilty by the Board of striking to force one Stanley, a home owner, to cease doing business with the Watson specialty store (Chattanooga, Tenn.), which had been installing floor and wall coverings in the Stanley home with non-union men. The Circuit Court said that "activities, intrastate in character when separately considered, if so closely and substantially related to interstate commerce that their control is essential or appropriate for the protection of interstate commerce from burden or obstruction, fall within the ambit of Congress." The Court ordered the NLRB order enforced. (*NLRB v. United Brotherhood of Carpenters and Others* (17 Labor Cases 65,690).)

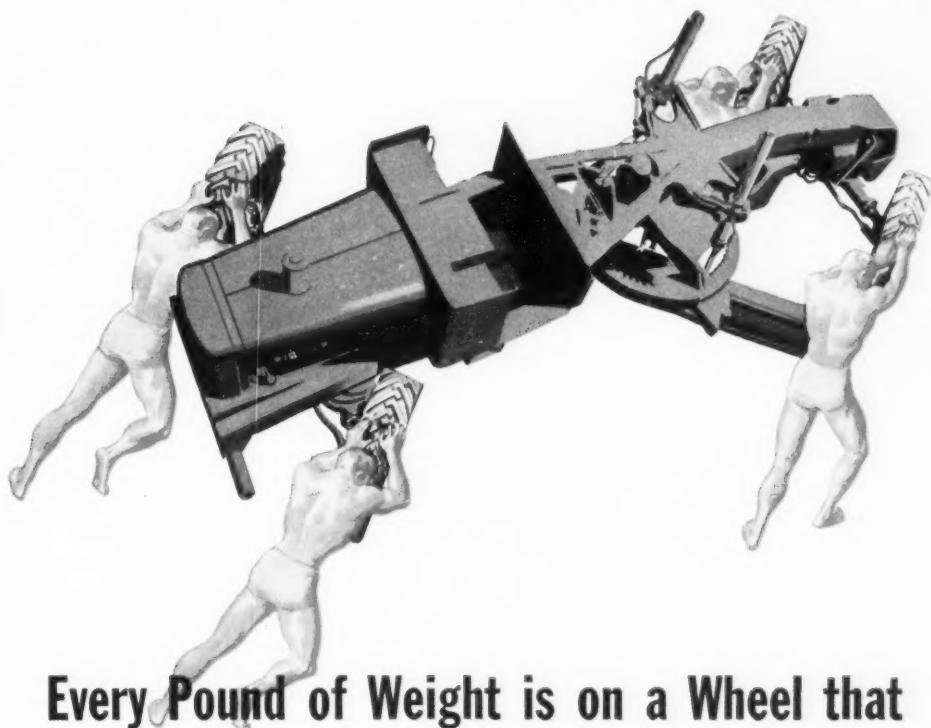
2. NLRB Holds That When the Agreement Does Not Contain a No Strike Clause, Union Can Strike to Modify Contract Any Time After 60 Days' Notice.

The Board in a confusing decision arrived at by conflicting reasoning of the members created a very disturbing situation which should not be relied on as precedent unless all facts are studied. It should also be understood

that breach of agreement before termination date can be dealt with by damage action in the courts regardless of this NLRB decision. The decision was that regardless of the length of the unexpired period of a labor agreement a union can strike to change its terms so long as it gives notice and waits at least 60 days. The Taft-Hartley Act, Section 8(d) provides that the duty of bargaining collectively includes the requirement that each party should "continue in full force and effect, without resorting to strike or lock-out, all the terms and conditions of its existing contract for a period of sixty days after such notice is given or until the expiration of such contract whichever occurs later." The Board said to follow the literal meaning of this provision would be unreasonable; and that Congress didn't mean it that way; that it was only meant to prevent "quickie" strikes. The Board said if unions could not strike for contract changes by simply giving 60 days' notice, they would be reluctant to make labor agreements of any substantial duration "and would thereby remove a most important encouragement to stability in industrial relations." The Board did not pass upon the Union's liability for breach of contract under Section 301 of the Act. (*United Packing House Workers CIO and Wilson Co.* (Case 2-CB-75).)

To date the NLRB has issued no decision on the Hewes Atkinson case in which the A.G.C. filed a statement with the Board.

88-H...99-H...MASTER 99



Every Pound of Weight is on a Wheel that

DRIVES and STEERS

That's why these husky graders, with their full hydraulic control, just naturally . . .

Go Places where ordinary graders cannot go.

Do Things ordinary graders cannot do.

Outperform ordinary graders on every job.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U.S.A.





New Office Building near Columbus Circle

This new baby skyscraper, on Broadway, between 55th and 56th Streets in New York's Columbus Circle district, was built recently to provide a large, flexible working space for the approximately 2000 employees of the Mutual Life Insurance Company of New York.

The 25-story, air-conditioned structure contains 575,000 sq ft of floor space. Its 2nd to 13th stories are to be utilized by the insurance firm, and the remaining floors will be rentable. The 153 ft x 210 ft building has a facing of limestone, aluminum spandrels and stainless steel trim, and is constructed with set-backs at the 9th, 11th, 13th, 20th, and 22nd floor levels. Its sidewalk will be kept free of snow and ice during winter months by means of heated anti-freeze, circulating through coils of Bethlehem Rayduct steel pipe which are embedded in the concrete.

To build this new member of New York's growing family of notable structures, Bethlehem was called upon for the fabrication and erection of some 6500 tons of steel.

BETHLEHEM STEEL COMPANY BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

Architects: Shreve, Lamb and Harmon Associates, New York
Consulting Engineers: Edwards & Horth, New York
General Contractors: Turner Construction Co., New York

FABRICATED STEEL CONSTRUCTION



» THE RIGHT of appeal to the courts is in too many instances denied the general contractor.

This is due to the practice of the Government requiring the inclusion in government construction contracts of provisions that in the case of disputes the decision of the head of the department, or his authorized representative, shall be final and binding. General contractors have condemned the use of these provisions, contending that it is inequitable for an interested party to contract to make decisions that are final and binding and thereby deny recourse to the courts.

The Moorman Case

The far-reaching effect of these provisions is clearly set forth in the *Moorman* case decided by the Supreme Court of the United States on January 9, 1950.

This case involved the interpretation and validity of terms in a government construction contract providing that in contractual disputes the decision of the Secretary of War, or his authorized representative, shall be final and binding.

The contractor entered into a standard form of contract with the Government to grade the site of a proposed aircraft assembly plant. The specifications, schedules, and drawings were made part of the contract. The body of the contract contained the usual provisions, including Section 15 making a department head's decision "final and conclusive on the parties" only when such disputes are over questions of fact. The specifications also contained a provision broadly stating "if the contractor considers any work demanded of him to be outside the requirements of the contract or if he considers any action or ruling of the contracting officer or of the inspectors to be unfair, the contractor * * * shall submit his protest in writing to the contracting officer, stating clearly and in detail the basis of his objections."

Right of appeal from the contracting officer's decision to the head of the department was permitted within 30 days, and the decision of the head of the department or his duly authorized representative "shall be final and binding upon the parties to the contract."

Taxiway Not Described

On the drawings, a proposed taxiway was shown, but it was not located within the plant site or described in the specifications.

Has the Contractor Recourse to the Courts?

• Recent Decisions Partially Answer Question

By John C. Hayes

Hayes and Hayes, Washington, D.C.

The contracting officer demanded that the contractor grade the taxiway at the point shown on the drawings. The contractor filed a claim asking for extra compensation for this work, on the ground that the taxiway was outside the requirements of the contract. The contracting officer rejected the contractor's claim.

The contractor thereupon filed suit to recover the extra compensation, contending that Section 15 of the contract limited the department head's decision to questions of fact. Further, that the dispute in the instant case involved a question of law and hence was subject to review by a court.

The Court of Claims granted relief to the contractor. The Government thereupon requested the United States Supreme Court to review the decision of the lower court on the ground that the decision created doubt and confusion as to the authority of designated officers of the United States to make final decisions under government contracts. The request for review was granted.

"No Recourse" Ruling

The Supreme Court of the United States, in its decision promulgated January 9, 1950, brushed aside the contention of the contractor that the requirement to grade the taxiway involved a question of law and that under Section 15 of the contract only questions of fact were involved.

It is pointed out that the section in the specifications expressly covered all claims by the contractor as to work that he might consider as outside the requirements of the contract. Further, that the requirement in the specifications was neither in conflict with nor limited by Section 15, as the provision in the specifications specifically set forth that it was not intended to cover methods of settlement otherwise specifically provided in the contract.

In brief, the court reiterated the principle that the parties to a contract are competent to make such agreements as deemed advisable for the settlement



Mr. Hayes is Legal Adviser to The Associated General Contractors of America and *The Constructor*.

of disputes. Therefore, the court held that the provisions in the specifications conferred on the Secretary of War, or his authorized agent, authority to make the final and binding decision, regardless of whether questions of fact or questions of law were involved and that the contractor had no recourse to the courts.

The Penner Case

In the case of *Penner Installation Corporation v. The United States*, decided April 3, 1950, by the Court of Claims, the court discusses the *Moorman* case, *supra*.

The Government had contended that the *Moorman* decision had precluded the Court of Claims from overruling the finding of the contracting officer made in good faith and that since the findings were against the contractor recovery was precluded.

The Court of Claims pointed out that the *Moorman* case involved the conclusiveness of the findings of the

contracting officer on the question of the interpretation of the contract and specifications but that in the *Penner* case the court was only concerned with the conclusiveness of the contracting officer's findings on questions of fact.

Officer Must Be Unbiased

The Government contended that these findings were binding on the court. This contention was overruled, the court stating that findings of fact of a contracting officer are conclusive and binding on the court unless the contracting officer acted arbitrarily or capriciously or that his decisions were so grossly erroneous as to show bad faith. The decision sets forth that the contracting officer in settling disputes must not act as a representative of either of the contracting parties but as an impartial, unbiased judge. The court points out that contracting officers' duty in settling disputes is not easy.

This burden is recognized by the following statement of the court:

"We are always loath to say that a governmental official has acted in bad faith. Indeed in the many cases that have come before this court there have been but very few instances in which we have found, or thought, that the contracting officer was unfaithful to the Government. Their fidelity is beyond reproach. But it often happens that they misconceive their function. Faithful to the Government they almost always are, but frequently they are lacking in impartiality. And, yet, this is the duty the disputes clause of the contract (article 15) casts upon them."

Difficulty of Impartiality

They are the Government's representatives and are charged with seeing that the Government gets what it contracted for. It is difficult to ask the contracting officer to act impartially when he must decide a dispute between the contractor and his employer, and yet the contract requires him to do so.

The court sets forth that in considering whether or not the contracting officer has acted impartially it is, of course, proper for the court to take into consideration in any case whether or not actual bias is shown, the correctness of the contracting officer's findings, his relationship to the parties, the allegiance he avows, and the duties his employment by one of them casts upon him.

The court does not impugn the hon-

esty of the contracting officer, as is borne out in the following statement by the court:

"So, if in any case we say that the contracting officer has not acted in good faith, we mean only that he has not in good faith discharged his duties as an impartial, unbiased judge. We do not at all mean to impugn his fidelity to his employer. Indeed, it is this fidelity to his employer, that makes it so difficult for him to act impartially."

In the *Penner* case the court found that the decisions of the contracting officer and head of the department were arbitrary and so grossly erroneous as to imply bad faith. A recovery was permitted.

Changes in Form Needed

Both of the foregoing cases merely serve to emphasize that the provisions making a decision by the head of a department, or his authorized agent, final and binding upon the parties should be eliminated from the standard form of government contract unless recourse to the courts on questions of fact, as well as of law, be specifically granted in the contract. Likewise, all provisions similar to the foregoing should be eliminated entirely from the specifications.

These decisions merely serve to point out the fact that it is grossly unfair for the head of a department, or his duly authorized agent, being interested parties to the contract, to have the authority to make final and binding decisions. The contractor is helpless against any such abortive procedure. The contracting officer likewise is placed in an unenviable position. Many times he was not even present when the contract was being drafted. He knows nothing as to what was in the minds of the parties to the contract when it was signed. Yet he is called upon to carry out the intentions of the parties.

This results in interpretations which differ sharply from the understandings that formed the basis of the contract. To add further to his responsibility, the contracting officer is charged with the duty of acting impartially in settling disputes. He is called upon to be an impartial and unbiased judge. This should be difficult, as the contracting officer is an employee of the Government and he is called upon to make a decision directly affecting the pocketbook of his employer. The contracting officer should not be subjected to such a situation. In many instances

he has selected a government position as a career. His advancement in his chosen field depends upon satisfying his employer. Under such circumstances it is unfair to ask the contracting officer to act impartially, when his employer is an interested party.

The foregoing merely serves to prove that the contractor should not be deprived of recourse to the courts by administrative action, nor should the contracting officer be called upon to act in a judicial capacity. This function should be reserved only to the courts.

Navy Shortens Forms

A new short contract form which greatly reduces paper work for small contractors has been introduced by the Navy's Bureau of Yards and Docks. Consisting of a single page, it replaces contracts of under \$5,000, the former 13-page form.

In effect it simply says on the upper half of the page, that "The undersigned agrees to perform the work . . ." and on the lower half, "The government hereby accepts your offer . . ." with space for necessary signatures.

Having proved satisfactory to both businessmen and the bureau, it saves the government a large part of its former printing bill.

Previously the bureau had developed a short form for payment and performance bonds which is now being favorably considered by all government agencies, and which may save the Government 2,000,000 sheets of paper annually.

GSA Has Appeals Board

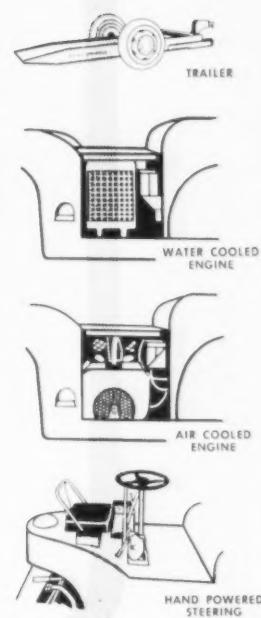
A three-man board of contract appeals recently was established in the General Services Administration by Administrator Jess Larson.

The board will consider and review appeals by:

1. Contractors from decisions of contracting officers under disputes clauses of contracts entered into by authorized GSA officials.

2. Contractors or others who have dealings with the GSA for relief from, change in, or modification of decisions by authorized GSA officials relating to contracts.

Members of the board will be appointed from time to time as appeals arise. No one who participated on the award or administration of a contract will be appointed to the board.



One Roller for 1000 Jobs!

That's a lot of work for a small roller—but Republic Asphalt Paving Company of Dayton, Ohio, completed exactly this volume of work during the 1949 season with their Buffalo-Springfield model KT-7, 3 to 5 ton tandem.

Used for patch work, driveways, parking lots and other small constructions, the KT-7 was quickly transported from job to job on its low-bed trailer. Now more portable than ever, when equipped with road wheels and husky towing attachment, the KT-7 can be completely rigged for hauling by one man in less than three minutes.

Available with either water-cooled engine and

hydraulic steering or air cooled engine and hand powered steering, this unit is easily maneuvered in the most restricted areas. A shovel opening in the drive roll head permits the use of wet sand as ballast and accounts for the wide range of working weights attained with this small roller.

If you have a variety of smaller rolling jobs in widely-scattered locations, you can cut lost time between jobs and save working time on the job with this rugged, economical and easily maintained heavy-duty roller. Your nearest distributor can furnish detailed information on either the Model KT-7 or the smaller 2½ to 3-ton Model KT-6. Call him today.



MAIL THIS COUPON TODAY

THE BUFFALO-SPRINGFIELD ROLLER CO.
Dept. A-5, Springfield, Ohio

Please send me Catalogue S-58-49 describing the right model for my requirements. Notify Distributor to call.

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CITY

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A. G. C.-Sponsored Engineer Unit Parades



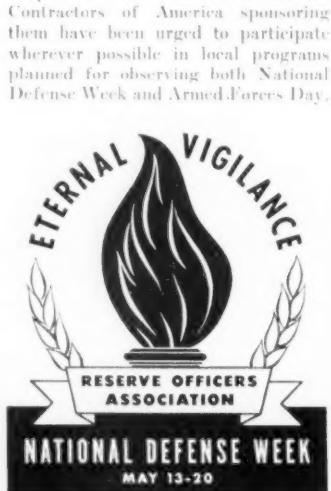
Scenes like this will be seen around the country during National Defense Week May 13-20, culminating with Armed Forces Day, May 20. The striking float above was entered in the St. Patrick's Day parade in San Francisco March 19 by the Northern California Chapter, A.G.C., sponsor of the 820th Engineer Aviation Battalion, one of the 83 such units sponsored by chapters and branches of The Associated General Contractors of America.

National Defense Week

Military reservists were to take part in National Defense Week around the country May 13-20, with the active forces joining on the final day, May 20, to observe Armed Forces Day.

National Defense Week has been sponsored annually since 1923 by the Reserve Officers Association of the United States, with more than 1,000 chapters throughout the country, for the purpose of directing the attention of the public toward the military state of the Union, with special emphasis on the role played by the military reservists in peace and war.

Theme of the week is that the United States can best maintain peace as its responsibility, with the most economical use of the military tax dollar, by maintaining a sizeable, well-trained reserve force. The reserve force must be recruited, trained and made ready for any eventuality during peacetime.



A. G. C. Units in Good Shape

On the basis that there are too many reserve supporting units in all branches for the present contemplated Army strength, the Army is considering a revised troop list and a reduction in the over-all number of reserve units.

Discussion with Army officials indicates that the 83 reserve construction units sponsored by The Associated General Contractors of America will be little affected, with the exception of elimination of the three Port Construction and Repair Groups which will no longer be included in the Army organization. Efforts will be made to replace these units with other types acceptable to the sponsoring chapters.

The A.G.C. was advised recently by Colonel Robert J. Fleming, Jr., assistant chief of engineers for military operations, that sponsors should maintain their units in at least the "B" status to insure retention and drill-pay status. He wrote, in part:

"This office is very interested in assisting the many chapters of The Associated General Contractors sponsoring engineer units to retain their units under the new program. The new program adds up to the fact that, where there exist more active units than the troop program provides, the stronger units will be retained and the weaker units will revert to Volunteer Reserve, no drill-pay status. It might be well if you would advise your chapters to the effect that the new program calls for survival of the fittest. To insure retention of units, each sponsor should institute immediate recruitment of personnel to bring his units to at least 'B' status. The 'C' status units existing at the end of the established qualification period will surely be dropped from drill-pay status and revert to the Volunteer Reserve."

Speak at Navy Seminar

A.G.C. Managing Director H. E. Foreman and W. A. Snow, coordinator for the A.G.C. affiliation program, last month spoke at the eighth seminar in the reserve officers' training program for the Navy Civil Engineer Corps in Washington.

Mr. Foreman discussed the relation of the construction industry to national defense, and Mr. Snow described the industry's apprentice training program.

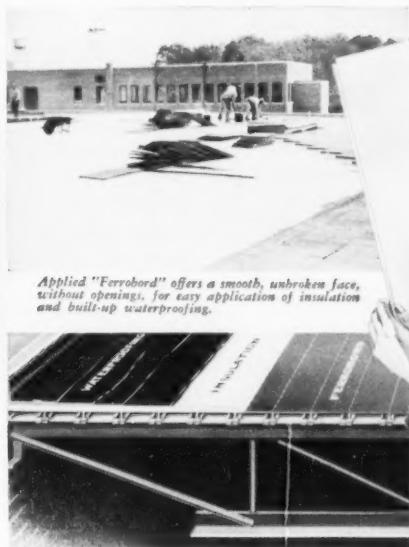


TRUSCON Ferrobord STEELDECK ROOF

these 2 square feet



"Ferrobord" can be welded directly to steel units such as Truscon "Clerespan" Joists.



Applied "Ferrobord" offers a smooth, unbroken face, without openings, for easy application of insulation and built-up waterproofing.



"Ferrobord" units are 6 inches wide by 1½ or 1¾ inches deep.

prove some mighty big points

It takes so little to prove so much with Truscon "Ferrobord" Steeldeck. With two square feet of sample and about twenty minutes of your time, an experienced Truscon man can demonstrate its many profitable advantages. The light weight but extreme strength of this material will be highly interesting to you, especially from the structural standpoint. "Ferrobord" members are so designed and formed that they firmly interlock with each other along their entire length. This achieves the maximum in lateral distribution of concentrated loadings. The quick, easy installation; the built-up roofing and insulation possibilities; the adaptability to flat, pitched or curved roofs; and other "Ferrobord" features are additional advantages you should investigate. Write for free illustrated literature and ask for a Truscon "Ferrobord" Steeldeck demonstration.



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FREE Book on Truscon "Ferrobord" Steeldeck Roofing. The Truscon Steel Company Manufactures a Complete Line of Steel Windows and Mechanical Operators . . . Steel Joists . . . Steeldeck Roofs . . . Reinforcing Steel . . . Industrial and Hangar Steel Doors . . . Complete Hangars for Small Planes.

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For more **BATCHING SPEED....**



JOHNSON Hi-Speed Batcher handles 2, 3 or 4 materials

Where you want high-speed batching and extreme accuracy for uniform strength concrete every batch, plus quick convertibility to handle 2, 3 or 4 materials, check the Johnson Roadbuilders' Hi-Speed Batcher. Its extra-wide fill valves permit high-speed filling, and retain minimum batcher height.

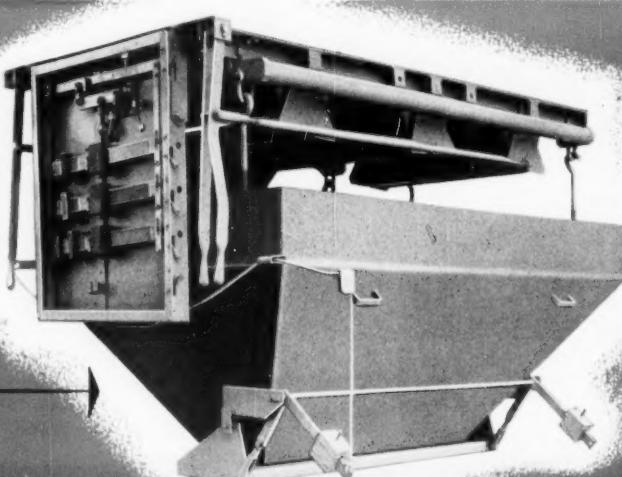
Standard Hi-Speed Batcher has wide-discharge hopper and scale beams to handle standard batch for 34-E pavers. Self-loading, counter-weighted discharge gate on weigh hopper is easily tripped . . . opens wide . . . extra-steep angle of bottom cleans out hopper fast.

For charging truck mixers, Hi-Speed Batcher can also be equipped with 2, 3 or 4-yd. weigh hoppers. Truck-mixer type has 4-compartment bin . . . 1 for sand, 2 for aggregates, and 1 enclosed compartment for cement. Both truck-mixer hopper and wide-discharge hopper are interchangeable on the scale frame. Overhead unit frame supports all fill valves, hand levers, aggregate hopper and weigh beam box . . . provides convenient reassembly, and insures accurate alignment of scale parts at all times.

Let your Johnson Distributor show you all the Hi-Speed Batcher features that will help you produce top-quality concrete fast, with most economical use of materials.

One or two Hi-Speed Batchers can be used with Johnson Roadbuilders All-Purpose Type Bin (above)...gives you a big-production combination.

Hi-Speed Batcher fill valves can be added or removed in the field, and the center spacing easily shifted for either 2, 3 or 4 material bins.



C. S. JOHNSON

.ACCURACY

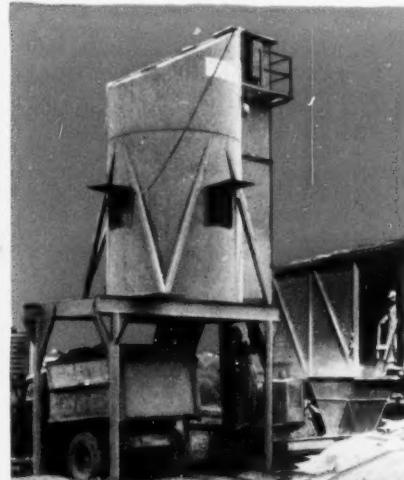


◆ ELEVATING CEMENT CHARGER

for batch plant or transfer plant operation. Standard Charger has size 14, 1000 lb. cap. cement weigh batcher hung under a 33-bbl. overhead storage hopper. Upper hopper can be equipped with two 1000 lb. weigh batchers. Quickly adapted to transfer plant by adding 50 bbl. extension hopper.

◆ ROADBUILDERS DUTCH MILL

has 50, 100, 150-bbl. storage capacities. You can start with one 50-bbl. section, and add extra sections, as needed, to 150-bbl. maximum. Easy to erect, dismantle, elevator casing unit and drive are attached to each bin section. House section is big enough for dual batchers.



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KOEHRING SUBSIDIARY
CHAMPAIGN • ILLINOIS



18.9 m.p.h. TRENCHMOBILE on rubber

All those small utility trenching jobs, formerly done by slow, costly hand methods can now be handled in far less time, at less cost, and less supervision with this one-man operated Trenchmobile. Cuts trenches 5" or 8" wide . . . up to 4 ft. deep . . . has 8 digging feeds from 1.72 to 14.65 ft. per minute. Travels job-to-job over city streets, highways at speeds to 18.9 m.p.h. See your Parsons distributor about its profit possibilities or write for new Trenchmobile catalog TODAY.

PARSONS COMPANY
NEWTON, IOWA

(KOEHRING SUBSIDIARY)



SAVE 25% with 205 shovel-pull shovel

Rugged, dual-purpose boom on Koehring $\frac{1}{2}$ -yard 205 handles both shovel and pull shovel . . . costs 20 to 25% less than conventional units requiring two separate booms. This important feature continues to save you money — and time — every time you change shovel attachment. In addition, crowd and retract cable is self-contained in boom . . . stays intact when boom is removed for quick, easy conversion to crane, clamshell or dragline. See your distributor or write for bulletin.

KOEHRING COMPANY
MILWAUKEE 10, WIS

Joint Committee with S.A.A. Established

- G. W. Maxon, S. M. Hoyt Named Co-Chairmen of Group

» A JOINT cooperative committee was established last month by The Surety Association of America and The Associated General Contractors of America, to work in the field of bonding and suretyship.

A.G.C. Vice President G. W. Maxon, Maxon Construction Company, Inc., Dayton, Ohio, and S. M. Hoyt, Massachusetts Bonding & Insurance Company, Boston, are co-chairmen of the new committee.

S.A.A. Members

Other members representing the S.A.A. are:

C. C. Conlon, United States Fidelity & Guaranty Company, Baltimore.

James E. Gibbons, American Surety Company, New York City.

J. P. Hacker, Standard Accident Insurance Company, Detroit.

W. E. Kraft, Continental Casualty Company, Chicago.

J. A. Swearingen, Aetna Casualty & Surety Company, Hartford, Connecticut.

Elmer C. Anderson, Surety Association of America, New York City, co-secretary.

A.G.C. Members

Members appointed by President Walter L. Couse to represent the A.G.C., in addition to Co-chairman Maxon, are:

William Curlett, Curlett Construction Company, Long Beach, California.

M. C. Miller, San Ore Construction Company, McPherson, Kansas.

Ray E. Ritchie, Boso & Ritchie, Inc., Ravenswood, West Virginia.

Walter Toebe, Walter Toebe & Company, Lansing, Michigan.

H. C. Turner, Jr., Turner Construction Company, New York City.

C. S. Embrey, staff member of the A.G.C., Washington, D. C., co-secretary.

The committee, which will operate in a fashion similar to the other six joint cooperative committees maintained by the A.G.C., is expected to hold its first meeting in the near future.

New A.E.D. Secretary



P. D. Hermann

The resignation of Frank G. Knight, executive secretary of the Associated Equipment Distributors, and the appointment of P. D. Hermann as his successor were announced last month by A.E.D. President C. F. Halladay.

Mr. Hermann had been associated with the A.E.D. for two years as administrative assistant, and for the past year was editor of the association's official publication, *Construction Equipment News*.

He is a graduate of Northwestern University, and formerly was assistant director of public relations at Illinois Institute of Technology.

Mr. Knight has become executive assistant in the Bemiss Equipment Corporation, Richmond, Virginia. Executive secretary of the A.E.D. since it moved from Washington to Chicago in 1947, he was responsible for conversion of the association's activities from wartime governmental reporting to its present program of providing members with services designed to assist them in the operation of their businesses in peacetime.



Associated Equipment Distributors' 1950 Officers

Officers elected at the recent 31st annual meeting of the Associated Equipment Distributors in Chicago are, left to right: R. J. Fyfe, Regina, Saskatchewan, Canada, vice president; Frank G. Knight, who last month resigned as executive secretary; H. J. Hush, New York, vice president; C. F. Halladay, Sioux Falls, South Dakota, president; E. J. Crosby, South Boston, Massachusetts, treasurer; R. L. Arnold, Salt Lake City, Utah, executive vice president; and J. A. Benson,

Houston, Texas, vice president. Mr. Halladay succeeded W. W. Bucher, New York, as president.

A.E.D. members expressed a feeling of moderate optimism for the year's outlook, although the pressing need for increased emphasis on all phases of management, sales and service was stressed continually throughout the meeting.

Among speakers was Walter L. Couse, Detroit, president of The Associated General Contractors.



Yes, the new 955A is a standout. And almost a sellout, too! This 2½ yard shovel, a smaller version of the famous P&H Model 1055, can be shipped completely assembled. Lower digging costs in 2½ yd. capacity are important to you, so it's important that you check the P&H 955A right now. Get your copy of bulletin X-122 now!

*Trademark of Harnischfeger Corporation for electro-magnetic type clutch

P&H
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CORPORATION

LOOK TO P&H FOR ADDED VALUES
Excavators • Overhead Cranes • Hoists • Arc Welders and Electrodes • Soil Stabilizers • Crawler and Truck Cranes • Diesel Engines
• Cane Loaders • Preassembled Homes

Cancer's danger signals

1. Any sore that does not heal
2. A lump or thickening in the breast or elsewhere
3. Unusual bleeding or discharge
4. Any change in a wart or mole
5. Persistent indigestion or difficulty in swallowing
6. Persistent hoarseness or cough
7. Any change in normal bowel habits

can be your
safety signals

Cancer is curable if discovered early and treated properly

If any of these symptoms appear, see your doctor *at once*.

Write for the booklet about cancer. Just address your request to "CANCER".

AMERICAN CANCER SOCIETY, INC.



Houston Expressway Stretch Already Approaching Capacity

- Heavy Traffic Indicates Time Savings to Motorists

» THE TEXAS Highway Department, which last month broke another record in amount of contracts awarded, has been proceeding in a modern manner in the construction of modern highways.

When it planned the Gulf Freeway in the Houston area, designed for a peak capacity of 80,000 vehicles daily, some local skepticism developed regarding the high traffic estimate.

Last month, W. J. Van London, engineer-manager, Houston Urban Expressways, reported that a peak load of 62,540 vehicles already had been reached on March 31 on the first four

miles placed in operation. An average week day (24 hours) of 60,300 vehicles was reported using the four-mile stretch which had been opened 18 months before.

The refreshing approach to the costly controlled access highways of today is cost per vehicle mile and savings to the motorist in time, tires, brakes, gasoline, etc.

Construction cost of the four miles of freeway open in Houston was \$8 million; work is proceeding rapidly on another 2.5 miles to cost \$3.1 million, and a proposed additional 20 miles would cost \$50 million.



Top right—Section in foreground was placed in service October 1, 1948. Another section nears completion in background, toward Galveston.



Above—Cylindrical steel forms, handled by cranes with special booms, expedited construction. Columns have bell-shaped footings to reduce unit bearing load.



Right—Roadway of overpass decks for southbound traffic was separated from northbound lanes by three-foot median strip with raised curbs (at left).

But Houston estimates the new facilities will eliminate more than 120 million vehicle stops and save more than 106 million vehicle minutes annually, resulting in a saving of \$2.7 million per year. A conservative value of 2¢ per minute was applied to passenger cars and 5¢ to commercial vehicles, obtained by savings in operating costs and man-minutes.

For through traffic, the Gulf Freeway has two 36-foot roadways separated by a four-foot center median. Local traffic is accommodated on a 32-foot frontage road at either side.

An important part of the new facilities are the several major bridge structures required. The typical span on most of the bridges measures 50 feet, but spans as long as 137 feet have been used. They were designed with a maximum of uniformity to permit rapid construction and minimum maintenance.

Construction of the expressway is a joint venture, with the City of Houston providing the right-of-way which has a minimum width of 200 feet, and the state matching the federal aid provided through the Bureau of Public Roads.

Contractors on the completed facilities and those under construction are Brown & Root, Inc., A.G.C., and Farnsworth and Chambers, A.G.C., both of Houston.

Heavy Load Test Slated

A mile-long section of U. S. Route 301 in Charles County, Maryland, will be subjected to heavy duty tests by trucks this spring and summer in a project sponsored by the Highway Research Board, at least 10 states, and the Bureau of Public Roads.

Concentrated truck traffic, using single axle loading of 18,000 and 22,100 pounds per axle and corresponding tandem axle loadings of 32,000 and 44,800 pounds, will operate at an average frequency of one truck per minute on a 24-hour day, seven-day week schedule.

The road has two 12-foot lanes of mesh reinforced concrete pavement laid on a good granular subgrade, each lane 9.79 inches in cross section. It is in good shape after nine years of normal traffic. Numerous instruments will be installed for the test recordings.

Measurements will be made of surface elevations, stresses and deflections under wheel loads, subgrade condition, and concrete quality.

Funds Seen Greatest Highway Problem

• A.A.S.H.O.-A.G.C. Group Discusses Stumbling Block

» THE GREATEST stumbling block in the path of increasing the volume of urgent highway construction is that of financing, according to the conclusions of three meetings early this year of the Joint Cooperative Committee of the American Association of State Highway Officials and The Associated General Contractors of America.

While the shortage of qualified engineers certainly remains a problem, several state highway departments reported that they could handle the engineering and planning work for larger programs if adequate financing could be provided.

Good public relations were considered of prime importance in musterizing the necessary public support for adequate expenditures.

The committee met for the first time in conjunction with the annual convention of the Association of Highway Officials of the North Atlantic States in New York City.

At least three New England states reported efforts to establish prequalification procedures for contractors. Some highway officials preferred post-qualification.

Other topics considered included

maintenance work by the contract method and load limitations on the transportation of road construction equipment. Several states reported favorable results in maintenance by contract. It was concluded that contractors could be expected to submit reasonable bids on this type of work because of the keen competition on new construction and the substantial amounts of construction equipment now idle.

Meeting in connection with the 31st annual A.G.C. convention in San Francisco, the joint committee sat with the Highway Contractors' Division.

Among the important actions taken there was support of the A.A.S.H.O.'s request for appropriations of \$810 million annually for federal aid.

It was concluded by the contractors that the industry could handle at least 50 per cent more highway construction than was performed in 1949 and that the industry could double 1949 volume by expansion, if it could be assured of several years of increased work.

Another meeting was held in Chicago early this year during the annual convention of the Highway Officials of the Mississippi Valley.



At the recent New York meeting of the A.A.S.H.O.-A.G.C. Joint Cooperative Committee: Left to right, A. N. Carter, manager of the A.G.C. Highway Contractor's Division; W. A. Warwick, chief construction engineer, Pennsylvania Department of Highways; Fred E. Ellis, highway contractor of Melvin Village, New Hampshire; Richard Hopkins, Richard Hopkins Company, Albany, New York; J. B. McMorrin, chief engineer, New York Department of Public Works and chairman of the meeting; and C. E. Swain, Bureau of Public Roads division engineer, Albany.



SURFACE ACCURACY

**no other method
of spreading can equal**

Continuous Course Correction — the automatic feature of the Adnun that corrects the irregularities in successive courses of black top pavement is an exclusive Adnun feature.

With the rollers riding on the finished surface and the Cutter Bar set close to the rollers, finished surfaces of unusual smoothness can be laid even with a very rough base and the minimum of advanced preparation.

The danger of "tearing" is reduced by the oscillating, sawing, cutting action of the Cutter Bar and an initial compression results from the bevel design of the tooth. This combined with the Breaker Bar action permits laying the heavier, tougher, cold mixes other pavers find difficult. Full adjustment permits "feathering" edges for widening on crowned surfaces and laying narrow strips. These advantages mean time and money. Don't plan a Black Top Contract without investigating the Adnun.

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Subsidiary of Blaw-Knox Co.

1914 State Street, Nunda, N.Y.

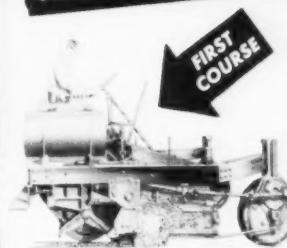
ADNUN

TRADE MARK REGISTERED

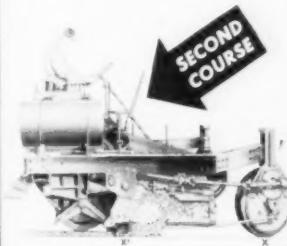
BLACK TOP PAVER



See How
the Adnun Lays
Smoother Pavement



Photodiagram of an Adnun Black Top Paver laying the first course over irregularities. For the purposes of illustration, the front wheel has been dropped into a hole the unusual depth of 5 inches. Even a hole this deep causes a deflection at the Cutter Bar (X) of only 3/4 of an inch.



Photodiagram of the second or top course. Here the front wheel of the Adnun has arrived at (X) a drop of 3/4 of an inch. The 3/4 inch hollow will be smoothed completely and an imperceptible ripple of 3/16 of an inch will be left at (X) in the finished course.

Are you pouring concrete?
Ask for a copy of the Booklet,
"How Would You
Do These Jobs?", on the
MultiFoote HighLift Boom.

The New INTERNATIONAL TD-24



HERE'S WHAT THE TD-24 CAN DO.



Positive all-weather starting on gasoline, with quick change-over to full diesel operation, all from the seat.



Separate reverse lever for quick change of direction. The tractor moves in the direction the lever is moved.



Self load and run with scrapers of 17-yard capacity—and shift gears on-the-go with the rolling load.



Cut waste shifting time out of work cycles, provide the best speed for every operation, 8 speeds in each direction.



INTERNATIONAL



CHAMPION of Crawlers

"The TD-24's work right along on slopes so steep we have to cut them down before other tractors can climb them even without loads," says Bob Rardin of Rardin Brothers, Akron, Ohio. "They are fast tractors, easy to shift and have plenty of power. This combination really moves dirt." His TD-24 was equipped with a bulldozer.

"It will out-buck any tractor I've ever run," says Harold Wooley's operator, Drain, Oregon, "and sure push dirt up hill—and climb steep grades." His TD-24 works regularly on 30% to 50% grades, building mountain roads.

"I wouldn't have anything else," says another Oregon operator. He works for V. R. Russell &

Sons of Valsetz. "It's sure fine on bulldozing; best dirt mover I ever got hold of."

That's the way owners and operators talk about the International TD-24 Crawler. It has earned their praise, for it does everything any other big tractor can do, *plus many things that NO other tractor can do*. The TD-24's versatility makes it the most useful and profitable earth-mover in any equipment line-up.

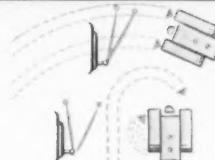
Visit your International Industrial Power Distributor for a demonstration. Then ask yourself how long you can get along without this big red worker and the extra earnings it will produce.

INTERNATIONAL HARVESTER COMPANY
Chicago

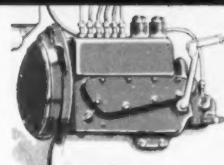
TD-24 CAN DO FOR YOU



Instant speed change up or down one speed, or stop, without declutching. Planet Power drive does it.



Planet Power steering puts turns with power on both tracks, feathered turns and pivot turns at your fingertips.



Torque Control feature of fuel injection pump increases engine torque when needed to overcome overloads.



Work on grades up to 100%. Its power, ground contact, balance and lubrication are right for licking any grade.



Handle heaviest loads on gradual turns as easily as straightaway because both tracks are powered in the turn.



Push or pull through tough going. The engine delivers extra power when its rpm is pulled down by load.

INDUSTRIAL POWER



How Can Architects Best Make Preliminary Estimates?

• Pitfalls in Arriving at Sound Cost Figures Outlined

By J. P. H. Perry

Consultant, Turner Construction Company, New York City

» HOW CAN architects best make preliminary estimates of the cost of their projects? One answer is that very generally they themselves shouldn't make any.

Of course, there are some large architectural offices with great practices who over the years have acquired cost data of their own which equip them to forecast pretty reliably the probable cost of most new projects. Such offices, however, are the exception rather than the rule—and even these firms very frequently follow the advice that I am about to give.

In my opinion the best way is for architects to ask the contractor whom they know best or whose judgment they value most to make the preliminary estimates. While it seems obvious, nevertheless my experience over the years indicates that either architects do not know or do not accept the fact that an estimate is only as good as the information upon which it is based. This is particularly true of preliminary estimates.

Preliminary estimates frequently are based on only cubic foot or square foot prices, or at the most, hasty takeoffs of sketchy information. If they are takeoffs, they are usually only estimates of the total square foot area of floors and walls, number of plumbing fixtures, number of elevators and the heating and lighting requirements and similar principal characteristics of the building.

"Similar" Buildings Compared

Such estimates, even on what seem to be parallel or even twin buildings, can vary greatly. Within the past month I have had sharp discussions with an architect concerning an apartment building in another city which my company decided could not be built for less than \$1.15 per cubic foot. And yet what seemed to be similar buildings in New York or Philadelphia were costing from 70¢ a cubic foot up to, at the most, \$1.00.

Note that I said "what seemed to be similar buildings." I quote from a memorandum which our chief estimat-

ing engineer, Mr. C. F. Rosenburgh, prepared for me on these two projects:

"The \$1.15 per cubic foot apartment varies from the 80¢ 'apparently similar building' in the following respects: For simplicity of description we will call the more expensive apartment Building A, and the other Building B.

"Building A averages $2\frac{1}{2}$ rooms per apartment against $3\frac{1}{2}$ rooms for B. The average story height is 9.3' against 10.1' on B. This results in A having a 10 per cent denser cube than B. Some of the major subcontractors vary, as herein below shown. These items alone account for 22.3¢ per cubic foot.

	Bldg. A	Bldg. B
	cu. ft.	cu. ft.
Electrical work	5.8¢	3.2¢
Heating and		
Plumbing	18.1¢	11.6¢
Kitchen Equipment	5.9¢	3.4¢
Piles	2.9¢	none
Plastering	14.1¢	9.5¢
Elevators	6.4¢	3.2¢
	53.2¢	30.9¢

"Apartment A, designed with reinforced concrete skeleton, 19 stories high, is more expensive than the structural steel and bar joist design of Apartment B, 10 stories high. The denser cube of A compared to B would also affect proportionately items such as doors, hardware, partitions and painting.

"Apartment B has one lineal foot of exterior wall for each 21.4 square feet of floor, whereas on Apartment A for each lineal foot of wall there is 15.8 square feet of floor. In other words, Apartment A has 35 per cent more wall per square foot of floor than B.

This article was adapted from an address delivered at a recent meeting of the New York Chapter of The American Institute of Architects.



Mr. Perry

Furthermore, Apartment B is on soil-bearing footings, whereas Apartment A is on 50-foot wooden piles. This accounts for about 20¢ per square foot higher cost of A over B."

18 Cost Factors

This memorandum led me to ask Mr. Rosenburgh to prepare what might be called an estimator's punch list of the variables we frequently encounter affecting the cost of a building. The preparation of preliminary estimates of costs of buildings requires giving consideration to at least 18 factors which affect the cost, as follows:

1. Use or type—that is, theater, factory, office building, etc.
2. Location.
3. Site condition—vacant. If not, what structures are on it.
4. Foundation conditions—piles, bearing value, rock, etc.
5. Dimensions of the building.
6. Number of stories and floor loads.
7. Type of construction—fireproof, steel or concrete.
8. Story heights and column spacing.
9. Exterior walls—stone or brick, etc.
10. Interior finishes—plastered, tile, etc.
11. Plumbing—for how many people.
12. Electrical requirements—type of fixtures.
13. Heating, ventilating, air conditioning requirements.
14. Sprinklers.

15. Elevators—number and characteristics.
16. When and how fast to be built.
17. Basic or special equipment—tenant changes, laboratories, acoustical treatment, etc.
18. Site development—work outside of building lines.

The foregoing 18 items will raise many questions of detail depending on the type of structure. Pertinent information for a factory obviously will not apply to a theater or hotel. It may be interesting to go a little further into the detail that a contractor must have before he can do a creditable job, even on preliminary estimates.

Many Details Required

Take Item 3 of the above list—site condition. If there are buildings to be wrecked, the estimator should have an informing description of them. He should also have some idea of the contour of the existing ground. If there are adjoining structures he should know whether they have to be underpinned or shored.

Take Item 4—foundation conditions. Reliable information should be given as to the sub-soil conditions, that is, what the bearing value of the ground is, or length of piles required; the elevation of ground water; if there is rock, where it is.

Item 5—dimensions of the building. The shape of the building has great influence on its cost, particularly the relationship of wall to floor.

Item 6—number of stories and floor loads. With these data should be given information as to overloads, such as for monorails and cranes, together with the relation of the first floor to finished grade.

Item 7—whether the building is fireproofed, semi-fireproofed, or mill construction is obviously important. Is the structure to be designed for future stories? Are there to be monitors or skylights? And the type of roofing and roof insulation are often factors in cost.

Item 8—story heights and column spacing should include information as to whether the building is to be designed for future stories. Varying story heights in the height of a building often increase cost materially.

Item 9—exterior walls. If there is anything special about the sash or if there are to be, for example, stainless steel fascia plates, special glazing or furring, or in the basement waterproofing or damp proofing,

such data should be made available.

Item 10—interior finishes. Costs can vary very greatly with the type of floor finish; wall finish, plastered or Hauserman type of surface; ceiling finishes, whether acoustically treated; type of interior partitions; and requirements as to doors and trim and painting.

Item 12—electrical requirements, particularly foot-candles of light required; type of fixtures, particularly varying types of fluorescent lighting; power requirements and any special requirements such as hospitals, laboratories and cafeterias should be noted.

Item 13—There is probably no item in modern building construction which is in a greater state of flux than heating, ventilating and air conditioning requirements. Each of these can materially affect the cost, and their characteristics should be tied down as accurately as possible.

Item 16—When and how fast a building is to be built can affect the cost of many structures as much as 10%.

Item 17—Is the preliminary estimate to be for a basic building only, if we are talking about an office building, for example. In other words, should the estimator include interior partitions only for elevators, stairs and toilet rooms and allow nothing for the sub-dividing partitions which the tenants may require. If the building is to be specially equipped, such as a laboratory or hospital or factory, how many of the following items should be included:

Laboratory equipment, lockers, kitchen and cafeteria pneumatic tube systems, conveyors, truck lifts, monorails and tracks, cranes, refrigerated space, machine foundations, etc., etc.

Item 18—site development. Should fencing, landscaping, sidewalks, roads, parking areas, watchmen's facilities, recreational facilities, and special fire alarm installations be included, and should allowance be made for connecting to existing sewers, lighting and power lines and water lines.

Use of Cost Indices

Getting back to the question, "How can an architect best make preliminary estimates?" I would suggest another approach, other than taking a capable contractor's advice, and that is for an architect, if he has built a structure at all similar to the one which he has under consideration at the moment, to try to measure the difference be-

tween the structure that has been built and the contemplated structure. The architect, probably better than anyone else, can express an informed judgment as to how the building varies from the old—for example, 10% or 20% more or less costly, or is it more elaborately finished, etc.

At this point there comes in, of course, the fluctuation in cost of building over the past 40 years. This fluctuation can be measured by any one of the several pretty generally accepted cost indices.

The Turner Construction Company's Cost Index, below, speaks for itself. A building that was built in 1938, for example, would today cost 209 times as much.

96

If the structure on which a preliminary estimate is desired has no precedent in the architect's office, obviously this procedure doesn't apply and the architect has either to turn to his contractor friends or perhaps refer to various cost hand books. In my experience the latter are not very reliable because they seldom give all the essential controlling characteristics of a building whose cost they record.

BUILDING COST INDEX

Average by Years

1913 = 100 1926 = 100

1913	100	51
1914	100	51
1915	103	53
1916	120	62
1917	147	75
1918	166	85
1919	196	100
1920	252	130
1921	183	94
1922	175	90
1923	196	100
1924	194	99
1925	195	100
1926	195	100
1927	190	98
1928	190	98
1929	185	95
1930	165	85
1931	145	74
1932	136	70
1933	141	72
1934	160	82
1935	162	83
1936	166	86
1937	193	99
1938	188	96
1939	182	93
1940	194	99

1941	217	111
1942	245	126
1943	257	132
1944	244	125
1945	257	132
1946	318	163
1947	380	195
1948	123	217
1949	411	211
1950 Feb.	107	209

Factors Determining Building Cost Index

1. Labor Rates
2. Material Prices
3. Productivity of Labor
4. Efficiency of Plant and Management
5. Competitive conditions.
6. Forecast of price trends.

Our indices do not necessarily conform to other published indices for the reason that others as a rule do not consider factors 3, 4, 5 and 6.

Cost Range on 145 Buildings

The tabulations on building costs prepared by Mr. Rosenburgh and presented here may be useful. They list 19 different types of buildings broken down for each classification as noted. These buildings have been built over

the past 25 years in many cities and under varying cost conditions. However, the price ranges charted have been reduced to a common base, namely, February 1950.

The minimum average and maximum costs per cubic foot and per square foot shown may be, if carefully used, not too bad a guide for very rough preliminary estimating.

Mark well the words, "if carefully used." The temptation of an architect when seeking a job to use the low or left hand figure is in my experience not too often resisted. Even the average figure may be misleading.

The safe thing for an architect, in my judgment, is to tell his client, at least in the very preliminary stages, that a given building may vary at least in cost within the ranges noted in the tables on this page and page 59.

Today's Buildings Are Better

Practically none of the buildings used in preparing this Turner chart were air conditioned. Air conditioning in an office, hotel or apartment house, or almost any other building, will add from \$2.00 to \$3.00 per square foot depending upon how thorough a job of air conditioning is done.

In preparing cost estimates of any

structures and basing these estimates on the cost of previously built buildings, an architect should have in mind that the current higher cost of buildings is due not only to increase in unit costs occasioned by higher wages, more costly materials and more onerous working conditions, shorter work week, heavier insurance, taxes and the like, but also in no small part to the fact that buildings today are generally better structures, having more gadgets and more facilities than those of two or three decades ago. Air conditioning is only one.

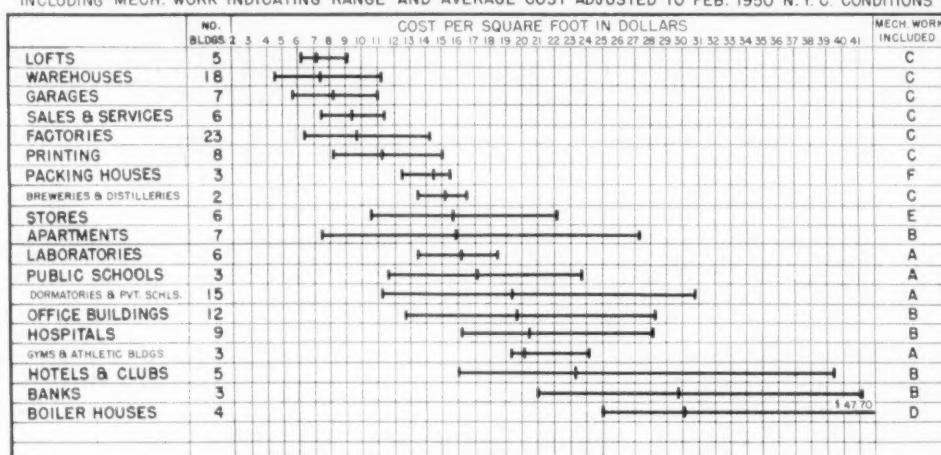
Take lighting—when I first entered the business 40 years ago, seven or eight foot-candles were all that was required in the average industrial building, and perhaps 15 foot-candles in an office building. Today 30 to 50 foot-candles is the rule. Fluorescent lighting has to a great extent replaced incandescent lighting. This is not the place to completely list other such items of work, but you all know how demanding most of your clients are nowadays.

While preliminary estimates can vary greatly from the final cost of a structure, I would like to take this

(Continued on page 59)

TURNER CONSTRUCTION COMPANY

RANGE OF COSTS PER SQUARE FOOT OF 145 BUILDINGS BUILT BY T. C. CO.
INCLUDING MECH. WORK INDICATING RANGE AND AVERAGE COST ADJUSTED TO FEB. 1950 N.Y.C. CONDITIONS



MECHANICAL LEGEND AS TO WORK INCLUDED

A-PLUMB. HEAT. ELECT.

D-PLUMB. HEAT. ELECT. & SPRINK.

B-PLUMB. HEAT. ELECT. & ELEV.

E-PLUMB. HEAT. VENT. ELECT. & SPRINK.

C-PLUMB. HEAT. ELECT. ELEV. & SPRINK.

F-PLUMB. HEAT. REFRIG. & ELECT.

MAR. 1 1950

PAY LOADS THAT PAY OFF



Quick, big, constant loads . . . they spell SPEED, VOLUME PRODUCTION. And it's the tractor that plays the biggest part in the pay-off. You get the very tops in results when you sign up the power, capacity and dependability that "Caterpillar" Diesel Tractors offer—the kind you see working on the state highway construction project pictured above. *

Says Contractor O. D. Cowart: "From my experience, 'Caterpillar' Diesel Tractors are unbeatable. Their ability to take punishment with a minimum of repairs makes them the leader in the construction field."

That's putting it straight. It's sustained slugging power that counts. Like the prize fighter who can stay on his feet round after round, it's the tractor which day after day can "take

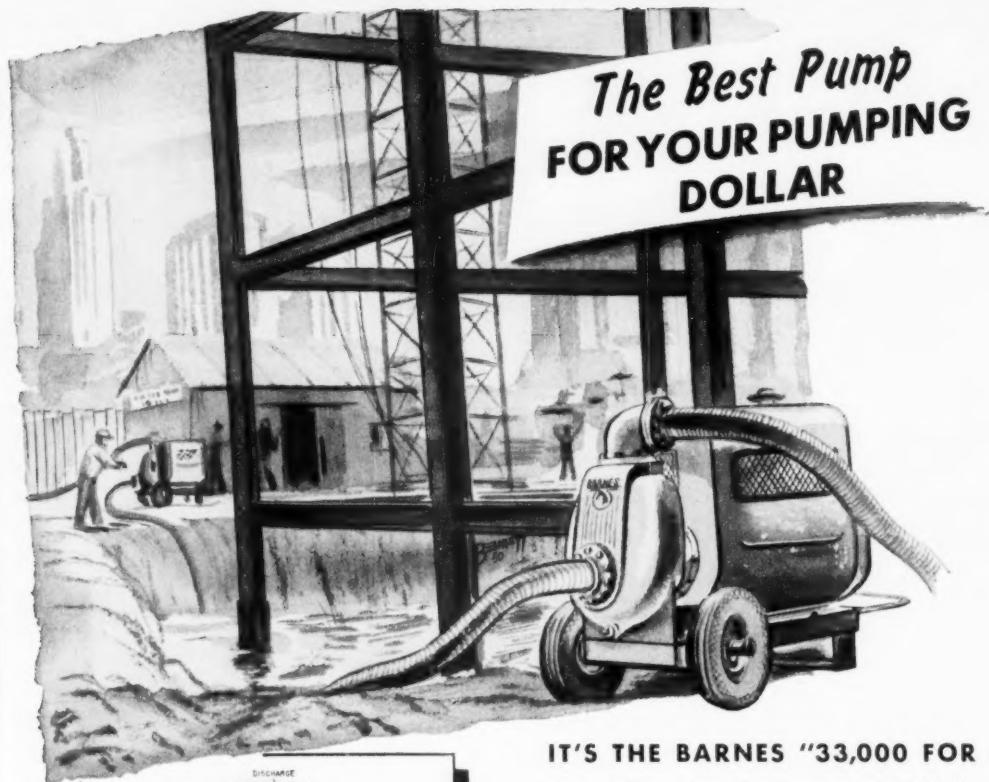
★ **New Mexico, near Silver City.** Two "Caterpillar" D8 Tractors push-and-pull loading a "Caterpillar" No. 80 Scraper with $11\frac{1}{2}$ yards of tough rock in a trifle over a minute—thanks to matched equipment and 130 honest drawbar horsepower. On 800-ft. one-way hauls the hauling team averaged 8 trips and 90 pay yards an hour. Total excavation (5.6 miles) 130,000 yards—about 60% rock. Two other "Caterpillar" Diesel Tractors, with Scrapers and Bulldozers, were also used on this work.

it and give it" that's the real profit maker in the long run. "Caterpillar" Diesel Tractors are made of that kind of stuff. They're tough! They don't need "long counts" (down time). They're quick on the comeback . . . should a new part or a fix-up be in order, there's efficient and quick-acting dealer service standing by.

"Caterpillar" leaves nothing undone toward building—and keeping—60-second minutes, 60-minute hours, 24-hour days of fighting performance into every unit that bears its name. Ask your "Caterpillar" dealer for the proof—in mechanical evidence, in user experiences, in demonstrations.

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From all angles, the Barnes "33,000 for 1" automatic centrifugals are the best pumps for the money you invest in pumping equipment.

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A choice for every need! Barnes complete line ranges from 3,000 to 90,000 G.P.H. in capacities. Buy the Best—Buy Barnes.

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MANSFIELD, OHIO

BUY THE BEST - - - BUY BARNES

(Continued from page 56) opportunity to call attention to the fact that even detailed, carefully prepared quantitative estimates, based upon wide range of reliable sub-bids, can vary a great deal.

We bid on a job two weeks ago where the low bid was \$4,900,000, and the high bid was \$8,900,000. On another job, the range was \$10,200,000 to \$12,200,000. These spreads reflect the varying judgments of the competing contractors. They also in many cases reflect the completeness of the architect's plans and specifications. As I stated before, an estimate is only as good as the information upon which it is based. Similarly, the bids of competing contractors vary almost directly with the completeness and accuracy of the plans and specifications.

Consider All Factors

Preliminary estimates can vary greatly from the final actual cost, depending on the state of mind of the man preparing the estimate. Is he "his brother's keeper" or not? Does his estimate go all the way or does it merely cover part of the picture?

For example, the other day I was

asked what a junior high school would cost in a certain community in New Jersey. Preliminary estimates by the architect were given as 70¢ per cubic foot. Our records and a check with two large architectural firms specializing in design of school buildings indicated that the minimum cube that the county ought to shoot at was about 85¢ or perhaps 80¢ if everything broke right. However, this figure was for the bare building. It did not include anything outside the building line. When you came to add the cost of sidewalks, curbs, entrance driveways, landscaping, recreational facilities, cost of bringing in mechanical services and architect's fees, the best opinion seemed to be that the county ought not to figure on less than \$1.00 or \$1.10 per cubic foot.

We are asked frequently if we can build a warehouse for \$5.00 per square foot or a factory building for \$6.00 or \$7.00 per square foot. If we answer yes, having in mind the bare building, exclusive of any work outside the building line and forget subdividing partitions, other than around stairs, elevators, and toilet rooms and omit-

ting any machine foundations, we would probably be about right.

On the other hand, doesn't the owner really want to know what his new warehouse or manufacturing plant is going to cost him complete, including such items as those just mentioned, as well as those listed, in connection with the junior high school, together with sprinkler tanks, water supply systems, fire alarm and watchman installations, parking areas? If the overall picture is estimated, the costs come up on an industrial plant from say \$7.00 to nearer \$9.00 or \$10.00 and on a laboratory from \$20.00 to perhaps as much as \$30.00 per sq. foot.

Pitfalls for the Architect

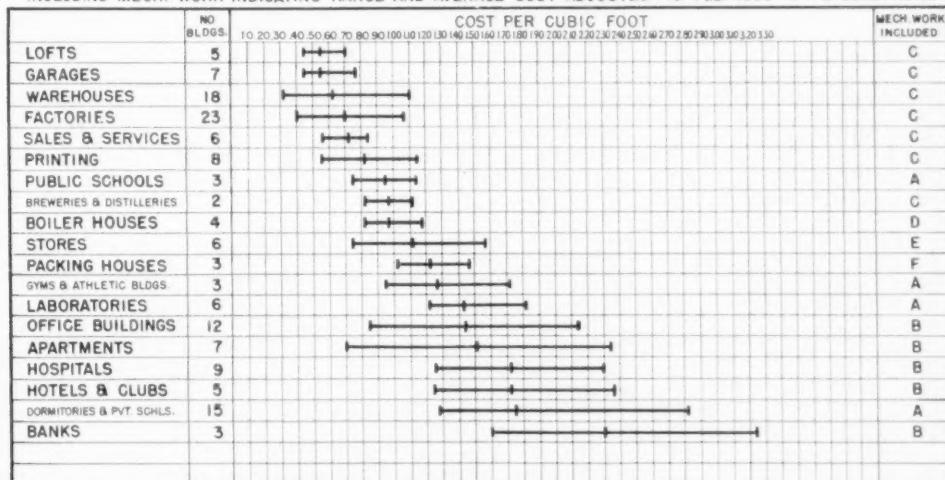
One other angle on preliminary estimating occurs to me, and that is the pitfalls that await the unwary architect in using offhand cubic foot or square foot prices without putting some penetrating thought into an analysis of them.

Over a luncheon table an architect may ask a fellow practitioner what he is building a certain apartment or hotel or loft for. A certain boastful pride often comes in and a figure of \$1.00

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MAR. 1 1950

or \$1.50 or 70¢ a cubic foot is given. What does this figure include? Has it got everything in it and is the building to which the quoted price applies truly similar to the job which the inquiring architect has in mind? Actually, preliminary estimates many times are like the answers anyone would get if he was asked, "How much does a suit of clothes cost?"

I think it was Euclid who said, "There is no royal road to knowledge." He certainly must have been thinking of estimating when he made that remark. Some of those who are con-

cerned with the problem that the architect faces of getting sound preliminary estimates to compete with the preliminary estimates furnished so readily and apparently authoritatively by the package service architect-engineer-contractor have wondered whether it would be possible to set up an estimating bureau managed by some contractor's organization, or by the Producers Council, or by some of the trade associations, such as the Portland Cement Association, or the American Iron & Steel Institute.

In my judgment an attempt to cre-

ate estimating service of this manner would fail for many obvious reasons.

It might be, however, that some of the architectural magazines might be interested in setting up a section giving monthly the cost of typical buildings. Even if this were possible of accomplishment, to me it would be futile in meeting the problem under discussion. Few buildings are exactly similar. As pointed out already herein, there are a host of variables which can greatly affect preliminary estimates. Most owners of buildings would probably not allow, or would at least resent, the public use of costs pertaining to their building.

Even in our company, with an experience totalling close to \$1,000,000,-000, of contracts executed, involving the construction of some 2,300 or more buildings, we find it difficult to clearly appraise the cost of a project on preliminary information where the owner's requirements are frequently left largely to our imagination.

Preliminary estimates should not be undertaken lightly. They frequently get the architect or the contractor into hot water later on. Care and study are required to develop in the mind of an estimator the probable owner's requirements.

Again I say, there is no royal road to this kind of knowledge. Preliminary estimates that are worth anything have just plain got to be sweated out.

A.I.A. Filing System Issued

The 1950 edition of the American Institute of Architects' "Standard Filing System and Alphabetical Index" (Document No. 172) is available from the A.I.A., 1741 New York Avenue, N. W., Washington 6, D. C., at a cost of \$2.00 each, postage paid.

The system provides a simple and comprehensive method for the filing, for reference purposes, of information concerning building materials, appliances, and items of equipment employed in construction and related activities. It has been published for 30 years. The alphabetical index facilitates the determining of an appropriate file number for material not already premarked.

Classifications and their designating file numbers have been amplified to render the system responsive to every reasonable current filing requirement, according to Theodore L. Coe, A.I.A. technical secretary.

Connecticut Housing Program Unique

• Private Construction; No Subsidy in Low Interest Loans

The State of Connecticut's unique housing program, instituted by Governor Chester Bowles, former head of the Office of Price Administration, recently moved into high gear.

The two-way program, an innovation at the state level, consists of the Home Ownership Program under which the state makes mortgage loans to families of moderate income at only 1½ per cent interest, and the Moderate Rental Program under which the state lends money to local housing authorities for construction of rental housing.

Based on Connecticut's ability to borrow money on short-term notes at very low interest rates, the programs were authorized by the General Assembly to lend \$30 million to individual home buyers at 1½ per cent, and \$65 million to local housing authorities for construction of rental housing.

"Interest paid by mortgage holders and by local housing authorities is sufficient to cover the interest to be paid by the state on its notes and almost all other expenses," according to Bernard E. Loslough, administrator of the Connecticut Housing Authority.

Private Construction

"Private builders and contractors build the homes to be sold under the Home Ownership Program as well as the rental units under the Moderate Rental Program. Private banks and other lending institutions approved as loan correspondents by the state process and service mortgage loans, which are insured or guaranteed by the Federal Housing Administration and the Veterans Administration.

"Thus, through complete coopera-

tion of government and private industry, Connecticut is making a significant contribution toward providing housing for moderate income families and setting a pattern that might well be followed throughout the country."

The \$30 million for mortgages is expected to provide mortgages on about 3,500 homes in the \$7,500 to \$10,000 price range. First mortgages are insured by the FHA, and second mortgage loans made to veterans are guaranteed by the VA.

Eligibility Requirements

To be eligible for a state mortgage loan, a family must have a total gross yearly income of not more than \$2,500, plus \$600 for each dependent, a net cash worth of not more than \$3,000, and be inadequately housed at present. About 7,000 persons have applied for the loans, and certificates of eligibility have been issued to about 6,000.

In the Moderate Rental Program, the \$65 million is being lent to 34 housing authorities for construction of about 6,000 units for rental to families with gross yearly incomes of not more than six times the shelter rent, plus \$300 for each dependent.

Average rents are \$40.48 for one-bedroom units, \$43.12 for two bedrooms, \$47.26 for three bedrooms, and \$48 for four bedrooms.

Most families qualifying in both programs have incomes of around \$3,000, according to Governor Bowles.

"We are providing decent, safe and sanitary housing for about 10,000 families with incomes too high to qualify them for federal subsidized housing and too low to afford good housing on the private market," he said.

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VA Disdains Private Architects' Work

- Indicates Return to Former Practice on Hospitals

» THE VETERANS Administration indicated last month that its hospital construction program is reverting to its old policy of having all plans and specifications prepared by the VA Technical Service instead of by private architectural firms, and placing construction supervision under VA instead of other agencies.

Private architects were expected to take exception to the agency's statements regarding their work.

"So far as is known," the agency said, "VA is the only government agency that is self-contained to the extent of preparing all plans and specifications for all of its projects.

"VA's experience with its construction program bears out the contention that new VA hospital facilities can be produced faster and cheaper by VA than under any other organizational plan.

"In an inspection of a group of similar hospitals, the plans and specifications prepared by VA were produced for a much less cost than those for which private architects were employed and the length of time between

the date of authorization to prepare plans and the date the projects were under contract for hospitals handled by VA was much less than the time required for those accomplished by outside architects."

The agency said the assignment of 40 of the 82 projects in the current program—both new and remodeling jobs—to the Corps of Engineers and private architectural firms "should be considered temporary," and was done because the 1947-48 program was considered "too large for any one office to handle."

"In fact," said VA, "the recall of certain 1947 projects from the Corps of Engineers and the allocation of all other projects since then to VA's Technical Service indicates that VA's hospital construction program is reverting to the procedure in effect since 1923," that is, design and construction supervision by the VA.

It was estimated that all but three of the 67 new hospitals in the giant program will have been completed or in the process of construction by the end of 1950.



Roosevelt Hospital to Be Dedicated

Public construction continues to play an increasingly large part in total construction volume. Here, the \$22.5-million Franklin D. Roosevelt Veterans Administration hospital at Peekskill, New York, nears completion.

The 37-building project, largely

constructed by Merritt-Chapman & Scott Corporation, A.G.C., of New York City, is to be dedicated May 21. Constructed under the supervision of the Corps of Engineers, the institution boasts facilities for 1,963 patients, and is situated on a 383-acre tract.

City Building Increases

Building construction activity in cities during 1949 was the greatest since the mid-1920's, the Bureau of Labor Statistics has reported.

Building permits issued and federal contracts awarded were valued at \$7,400,000,000 during the year, a six per cent increase over 1948.

Residential construction was almost entirely responsible for the increase. New residential construction rose 11 per cent to \$4,000,000,000.

New non-residential building was about the same both years, being slightly more than \$2,300,000,000. Addition, alteration and repair work declined seven per cent.

More than 600,000 dwelling units were authorized by building permits in cities during 1949.

Permit valuations for community buildings (hospitals, churches, schools and other institutional buildings) exceeded \$1,000,000,000 in 1949. Increases for such structures almost offset declines in both commercial and industrial urban building.

House Building Spectacular

With 80,000 new nonfarm dwelling units started in February, the nation has just completed the most spectacular winter homebuilding season in its history, the Bureau of Labor Statistics has reported. Builders have been starting new dwellings at the rate of about 80,000 units a month since last December. This has shown a seasonal decline since the 95,500 starts in November, but has been higher than normal during the winter.

During 1949, 1,025,800 new units were started. This was nearly 10 per cent above the previous peak of 937,000 in 1925. While much attention was centered on apartment building, the largest number of single family homes of any year were started.

Zoning Booklet Published

Pointers on the effective use of zoning regulations as a stimulant for healthy community development are provided in a 44-page booklet recently issued by the Construction and Civic Development Department of the Chamber of Commerce of the United States. Title is, Zoning and Community Development.

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If you have work to subcontract for any of tools shown, please describe fully in letter and we will have your local LeTourneau Distributor put you in touch with nearest owner equipped to handle your work.



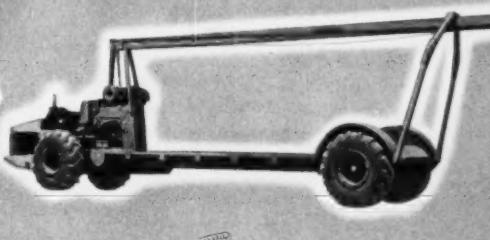
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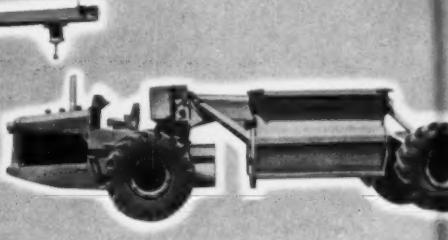
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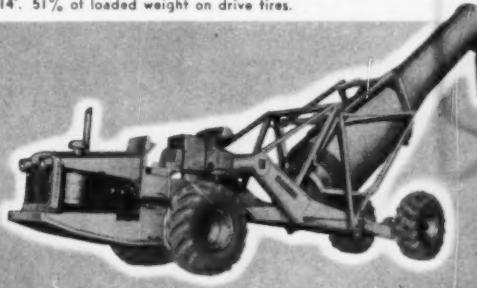
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	CONTRACTS				28.	Financial Statement and Questionnaire for Credit Transactions	.20	1.80	12.00
3.	Standard Contract for Engineering Construction issued by the Joint Conference on Standard Construction Contracts	.25	2.75	20.00		MISCELLANEOUS			
4.	Standard Building Contract of the American Institute of Architects—Revised 5th Edition	.50	47.50		29.	Insurance Check List	.10	1.00	5.00
5.	Subcontract form—American Institute of Architects—Revised 5th Edition	.10	9.50		30.	The Functions of a General Contractor	.10	.75	6.00
7.	Standard Government Contract and Instructions to Bidders	.10	.50	4.00	34.	A.G.C. Governing Provisions	.10	.50	5.00
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May 1950

» WORK IS reported ahead of schedule on the big \$13,767,843 twin-tunnel Squirrel Hill job near Pittsburgh because of an unusual method devised by the forces of B. Perini and Sons, Inc., A.G.C., Framingham, Massachusetts, in speeding the moving of seven 50-foot steel concrete forms from the portal of one completed tunnel to the other.

The big job of shifting the bulky forms, originally expected to take several weeks, was done in less than one week by mounting them on a specially-constructed gantry and carrying the 110-ton load over two Caterpillar Diesel D8 tractors, instead of by dismantling the forms and reconstructing them at the second site.

The physical layout of the two tunnels reportedly would have required substantial time and expense in the moving of the three liner forms and four ceiling forms in ordinary practice. A natural wall extending beyond the tunnel entrances and a concrete wall constructed for a bridge overpass prohibited shifting the gantry and forms from one tunnel to the other without angling the form between the two obstacles.

Maneuverability of the tractors permitted successful shifting of each form in a few hours.

Contractor's Ingenuity Puts Job Ahead



Last of the liner forms is shown being broken away from completed tunnel walls prior to lifting from rails hydraulically, and being carried by two Caterpillar D8 tractors to second tunnel. Job is on Penn-Lincoln parkway. Tunnels, 4,224 feet long, were holed through last fall.

Whitney Dam Progressing

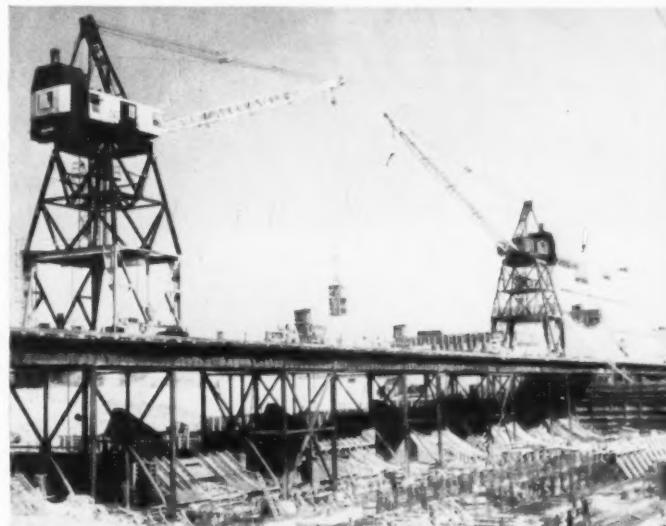
Construction on the big Whitney Dam across the Brazos River valley 15 miles southwest of Hillsboro in Hill County, Texas, recently passed the half-way mark.

One of the Corps of Engineers' key flood control projects in the Southwest, the \$40 million dam and reservoir will harness Texas' largest river and materially reduce an estimated \$7.5 million annual flood toll in the lower Brazos valley.

The project also will provide hydroelectric power for municipal and industrial areas, and will serve central Texas irrigation and conservation. The lake shore region will be developed into a recreational center for camping, boating and fishing.

The dam and reservoir are scheduled for completion in early 1953 by L. P. Reed, Inc., A.G.C., of Meridian, Texas, and Martin & Grace, Inc., Dallas.

The steel construction trestle was designed by U. S. Steel's Virginia Bridge Company to specifications supplied by the contractors.



Two 190-ton revolving gantry cranes operating from a 1,221-foot steel construction trestle lower concrete on Whitney Dam project.

Memo from a Contractor to Employees:

» THE FOLLOWING memorandum recently was sent by Harry W. Morrison, president, Morrison-Knudsen Company, Inc., Boise, Idaho, to his employees through *The Em Kyan*, company publication:

"Morrison-Knudsen Company, Inc., has never been and is not now concerned with partisan politics as such. Our business is heavy construction, a highly competitive field of private enterprise in which we obtain and execute contracts both for private owners and for governmental agencies, staking our invested capital on our capabilities, asking no subsidy and no favor not based upon merit.

"Our management has, however, a legitimate selfish interest in political pro-

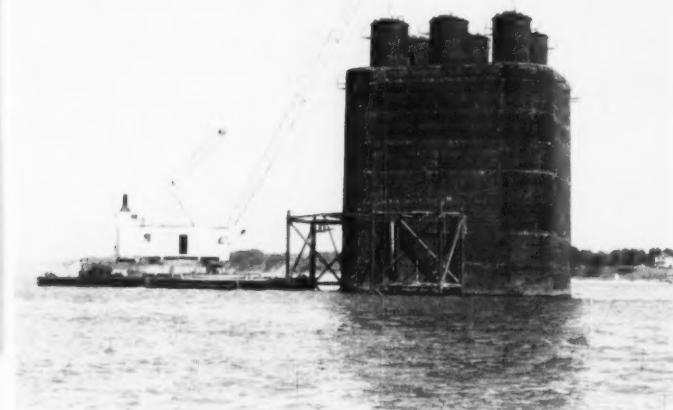
posals that would affect our business, the substantial investment it represents, and the livelihood of many thousands of people it employs. To borrow an ancient political term, we view with alarm an authoritarian proposal, urged by the socialistic element in national polities, to establish in our own flourishing Northwest a regional dictatorship to be known as the Columbia Valley Authority, or CVA. Following the pattern of the Tennessee Valley Authority in southern states, it would authorize three appointed bureaucrats to rule over the economic future of a seven-state area under the pretext of directing the development of vital water resources.

"The development of those resources

needs no super-authority to supplant the able and experienced planners of the Bureau of Reclamation and the Army Corps of Engineers. In this half-century of tremendous structural achievement they have planned and directed construction in the Northwest of multiple-purpose dams, power plants and irrigation facilities of the largest magnitude in history. Although limited by congressional appropriations and interrupted by wars, they have provided the water and power resources to serve the rocketing population growth of this prosperous region with such dams as Grand Coulee and Bonneville, Dorena, Deadwood, Anderson Ranch, and many others. Now they are erecting Hungry Horse, McNary, and Detroit, in rapid, coordinated development of the Columbia Basin waterways.

"Private contractors, including M-K have constructed these projects under contracts awarded to the lowest bidders. Under TVA, this practice was largely replaced by government forces doing the work without competition, with far less efficiency and at far higher costs than would private contractors through competitive bidding. In the government operation of the un-taxed properties so built, TVA has destroyed tax-paying private power producers who had pioneered in electrical development, who were as essential factors in the regional and national economy as are the transportation companies, the telephone and telegraph companies, the factories, newspapers and stores.

"We believe CVA would be a departure from sound principles of American economy into the path of reckless socialistic dictatorship—a threat to the welfare of our business and of business in general. Therefore we are against it."



Mammoth Bridge Caisson Placed

The first section of the big double swing-span bridge being constructed on U. S. Route 17 at Yorktown, Virginia, was floated from the Newport News Shipbuilding and Dry Dock Company to its site 10 miles away in the form of this giant caisson.

Measuring 52 by 66 feet in cross section, and 110 feet high, the base for the first large river pier will take months to fill with concrete and sink far below the river bed. Another caisson of similar size will support the second channel pier in 80 feet of water.

and four smaller ones will support additional piers for the 3,750-foot bridge.

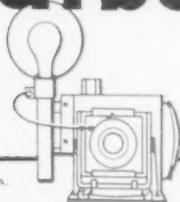
Massman Construction Company, A.G.C., and Kansas City Bridge Company, A.G.C., both of Kansas City, Missouri, hold a joint \$4,690,232 contract for substructure, and the Virginia Bridge Company, Roanoke, will build the superstructure at a contract price of \$2,424,711. Approaches and acquisition of ferry facilities will put the cost at around \$9 million, largest project in the history of the Virginia Department of Highways.

Chamber Issues Booklet

Threats of socialization of the nation's economy by executive control of natural resources are described in an illustrated booklet, "Government by Authorities," published by the Chamber of Commerce of the United States.

It deals with proposals to establish a national system of eight more valley authorities, patterned after the Tennessee Valley Authority, and recommends local and civic action to meet the threat. Copies are available from the Chamber, Washington 6, D. C., at 5¢ each, or \$3 per hundred.

Barber-Greene Photo-News



PRINTED IN U.S.A.
217M-AM-4-50

ON-THE-JOB VIEWS AND COST-SAVING IDEAS • VOLUME 1 • NO. 1



Extensive use of cost-reducing belt conveyors is evident in this view of Uvalde Rock Asphalt Company's plant.

84X715

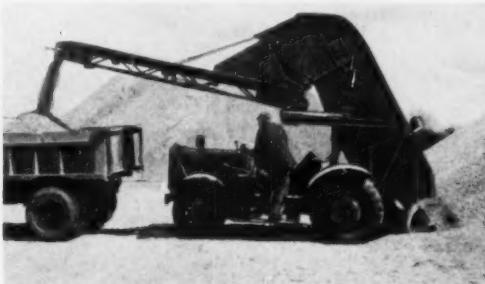
MINES 6 MILES OF ROAD PER DAY

Every day from 3,000 to 4,000 tons of processed rock asphalt are produced by the Uvalde Rock Asphalt Company out in Blewett, Texas — enough to put a 1-inch top course on 6 to 7 miles of road. This impressive production achievement is made possible largely through the use of belt conveyors that handle all the material through processing operations to the various stock piles. B-G Belt Conveyors are ideally suited to this type of operation, where relocation is frequently necessary. They are easily disassembled, relocated and reassembled as conditions dictate.



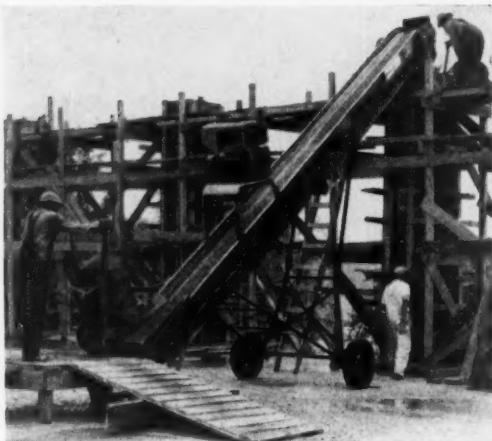
84X715

HISTORICAL SITE FOR TURNPIKE PLANT. A modern B-G belt conveyor system identifies Pennsylvania Aggregate's Cornwall plant which is located on famed Cornwall Banks — site of one of the world's greatest mines — oldest continuously operated in the new world. The two-century accumulation of limestone — eight million cubic yards — is being processed for use by various Turnpike contractors.

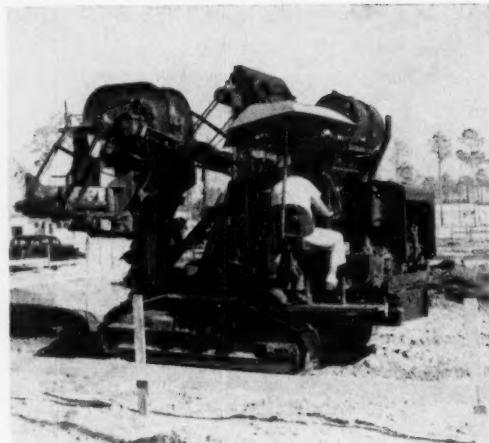


87-60

NEW LOADER HAS LONG REACH. Longest, highest trucks, trailers — even railroad cars — are loaded to full capacity at a 3 yd. min. clip by the B-G 543 Loader. Hydraulically controlled conveyor swivels to trim load, eliminates spillage or partly filled trucks. The 543 travels at 15 m.p.h. on its tractor-type chassis is easily convertible to a 7-11 yd. min. snow loader to give year 'round service.



WET CONCRETE GETS A LIFT. Another example of the broad variety of work that can be done by B-G portable conveyors came up on a recent H. A. Dailey Company job near St. Louis. A number of 16-foot columns were poured by Dailey's B-G portable—eliminating costly ramps and scaffolding, allowing simple buggy loading. The job was done quickly at lowest cost by this portable Barber-Greene which, incidentally, was towed all the way from Aurora, Illinois, to the job, over 250 miles. Portability like this pays off on job after job.

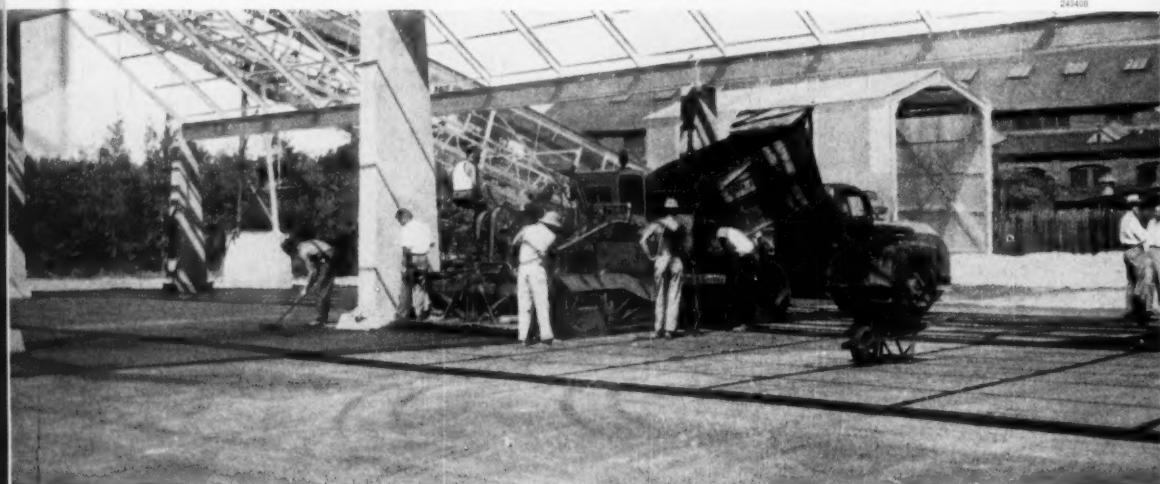


"AT HOME" IN MIAMI SUBDIVISION. Digging footings by hand in tough coral rock is an expensive operation that's avoided by such Florida contractors as the Clinton Construction Company in Miami. On a large subdivision project recently, all footings were dug by their B-G ditcher on an "efficient and economical" basis. Coral rock, caliche, frozen ground—even bituminous pavement—pose no problem for B-G Vertical Boom ditchers. Their "milling action" enables them to cut through toughest material, leaving a clean-bottomed, smooth wall trench.

INSIDE JOB

By a Smooth Operator

When the state of New Hampshire decided to improve the footing and reduce adulteration by surfacing the floor in its Concord coaling base shed, a B-G finisher owned by The Manchester Sand and Gravel Company took over the job. In the shed area, which was restricted by several rows of I-beam roof supports, it maneuvered smoothly to place 500 tons of material with a minimum of hand work required for finishing. The base and binder course were laid the length of the building, and the final sheet asphalt course was laid at right angles to them. Result: a smooth, weatherproof surface at lowest cost.



for full, fast information on any equipment

A NINE-YEAR-OLD MAKES GOOD IN NEW CAREER

Back in 1941 a B-G Travel Plant mixer started its working life with Rein and Schultze, Wisconsin road builders. Today, nine years and many hundreds of miles later, this original Travel Plant forms the nucleus around which the owners have built a highly efficient single aggregate plant. With a B-G Dust Collector and low pressure burner Dryer, this setup produced 120 tons of mix per hour in recent work on Wisconsin Highway 71. Future plans involve the possibility of adding a gradation unit for producing multiple aggregate hot mix. Barber-Greene long-term sturdiness combines with Barber-Greene flexibility to greatly extend and prolong the usefulness of B-G asphalt mixing equipment.

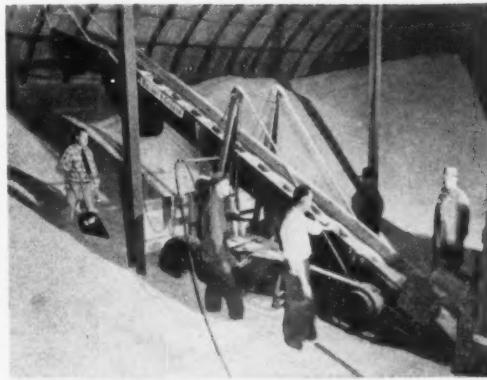


640730



640848

REMIND YOU OF LAST WINTER? Communities where snow took its toll last winter—in lost parking meter revenue, traffic and business interruptions and the like—should plan now to be ready next year to minimize these losses and to cut the cost of clearing snow quickly. The new Barber-Greene Model 544 is within the budget of small communities. It travels at 15 miles per hour—and loads up to 11 cubic yards a minute, keeps trucks on the move with a minimum of manpower. An added asset: it can be converted to an all-material, 3 yard-per-minute truck loader for summer use at little cost other than for exchanging the bucket lines. Other B-G Snow Loaders with capacities to 20 cu. yd. min.



GLOBE-GAZETTE PHOTO

NEW TWIST FOR A "GOOSENECK." The versatility of a B-G Gooseneck Loader eliminated the need for extra investment in machinery for the Farmers Elevator Co. of Mason City, Ia. For with the problem of cutting costs in loading, unloading and reclaiming coal, they needed mechanical help in storing over 55,000 bushels of corn. Their B-G "Gooseneck," along with its coal business duties, handled this job—loading storage bins at a rate of 300 bushels in 20 minutes. The exclusive "Gooseneck" design of this Barber-Greene—which minimizes degradation when handling coal—was an asset in handling seed corn as it helped prevent damage to the kernels.

on these pages--see your B-G Distributor

Barber-Greene



Photo-News

800114

IT'S A BRIDGE— FOR AGGREGATE ONLY

When your sand deposit is on one side of a navigable stream and your plant and railroad facilities are on the other, you have a problem similar to that one faced by Becker County Sand and Gravel Company in Fayetteville, North Carolina. Their solution: a unique bridge with 55-foot clearance carrying a 408-foot B-G belt conveyor, and another B-G conveyor that takes the sand and gravel to the washing and screening plant. Currently, this company is moving around 25 cars per day from this plant—another "special" problem solved through the use of standard, pre-engineered, easy-to-install Barber-Greene belt conveyors.



800115

TRIPLE PLAY BY WELL-KNOWN TEAM. From siding to silos via B-G hopper-car unloader and B-G transfer and shuttle belt conveyors is a fast, low-cost trip for materials used by Imperial Redi-Mix Company in their plant at Melrose Park, Illinois. Mechanized "push button" handling with this unloading-storing team reduces the manpower requirements to a minimum.

SERVICES THAT PAY—MORE THAN THEY COST

There is much for you to gain in calling upon your Barber-Greene distributor for help in solving problems involving the handling of all materials . . . mixing and placing bituminous surfacing materials . . . as well as ditching and snow removal. Your B-G distributor and his sales and service representatives have been through intensive training courses at the Barber-Greene factory. They know how to apply Barber-Greene equipment to assure the most in performance on your job—they know how to show you the best in maintenance practice. Further, your B-G distributor has service and repair part facilities you can depend upon through the years. For complete information—bulletins, specifications and prices on any or all Barber-Greene equipment—get in touch with your B-G distributor or call, write or wire directly to the address below.



Barber-Greene Company
AURORA, ILLINOIS, U. S. A.

» REPRESENTATIVES from the Netherlands construction industry early this month completed a six-week tour of studying American methods.

Principal purpose of their study was to find ways of achieving greater productivity at lower costs to help repair war damage to housing and other facilities in Holland.

The group, composed of employer and labor representatives, was brought to this country under auspices of the Economic Cooperation Administration. There were seven employer and three labor members.

Assisting the ECA were the national organizations and local groups of The Associated General Contractors of America, The American Institute of Architects, American Society of Civil Engineers, National Association of Home Builders, the Building and Construction Trades Department of the American Federation of Labor, and various federal and local governmental agencies.

After landing in New York on March 27, the group went to Washington for about a week of meetings with government and industry representatives. While there the group was shown work on reconstruction of the White House.

Subsequently the study team visited, in order, Miami, New Orleans, Baton Rouge, St. Louis, Cincinnati, Pittsburgh, and New York City before sailing or flying back to Holland early this month.

Netherlands Construction Unit Sees U. S. Industry at Work

• A.G.C., Other Organizations Assist ECA in Visit

Housing Needs Outlined

More than five per cent of the total number of housing units available in Holland in 1940 was destroyed by bombing, and another 17 per cent was partially damaged. To meet the immediate housing demand, the Dutch estimate that 60,000 to 70,000 houses must be built annually for the next 10 to 15 years.

Other difficulties have been lack of building materials due to a shortage of foreign currency with which to pay for imports, other problems of financing, and low labor productivity.

In this country the group hoped to learn about public and private means of financing new construction, construction materials, training methods, and ways to increase productivity on public works, housing, and industrial construction to help Holland repair war damage and increase its facilities to care for a growing population.

Last summer a similar productivity team visited this country from England.

The photograph below was taken in Washington when the Netherlands group met with representatives from

the construction industry in this country.

Those in the picture, seated from left to right, are F. Stuart Fitzpatrick, manager, Construction and Civic Development Department, Chamber of Commerce of the United States; Job Dutra, managing director, Dutra Ltd., contractors, Rotterdam; Jaques J. G. Van Hoek, managing director of Wernink's concrete company, Leiden, and chairman of both the Netherlands contractor organization and federation of employer organizations in the building industry; Johannes A. Bangert, chairman of the Dutch employers in the house building and building industry, Amsterdam; and Willem C. S. Laman Trip, secretary to the trade group building industry, Wassenaar.

Standing, left to right, are Carl G. Lans, technical director, N.A.H.B.; Frank L. Weaver, director, A.S.C.E.; Edmund R. Purves, executive director, A.I.A.; H. E. Foreman, managing director, W. A. Snow, manager, Building Contractors' Division, and J. D. Marshall, assistant managing director of the A.G.C.; and M. H. Moerel, technical and industrial adviser, The Netherlands Embassy, all of Washington.



Part of Netherlands group, U.S. hosts in Washington. (Names in story above.)

Seattle Chapter Erecting Own Building

• \$125,000 Structure to Be Completed August 15

» PROBABLY the most elaborate plan among buildings constructed by chapters and branches of The Associated General Contractors of America for their own use got under way last month as the Seattle Chapter began construction of a \$125,000 building to house its expanding facilities.

As proof of its "faith in the future of Seattle" and confidence in the continued growth and prosperity of the Northwest, the chapter began construction of its Construction Center on April 3 as the culmination of a building program instituted in 1949 by a committee headed by President Cliff Mortensen (then vice president), and James W. Cawdrey, 1949 president of the chapter.

To House Allied Interests

The new structure will house the chapter's offices, those of its affiliate, the Seattle Construction Council, and others closely allied to the construction industry.

"It is planned that the new structure will represent all that is latest and best in modern building structure and design, and it is designed to streamline and expand the organization's facilities, in order that the members may better serve the building public," the chapter announced.

August 15, 1950, has been set as the completion date, and appropriate ceremonies are planned, with several

national officers of the A.G.C. invited to attend for the occasion.

The J. H. Wilson Construction Company, chapter member, is performing the construction. Mechanical work is being done by Richard M. Stern, and electrical work by Beverly A. Travis. Plans are by Stuart & Durham, A.I.A., and structural design by Stevenson & Rubens.

Steady Membership Growth

Incorporated and affiliated with the A.G.C. in 1922, the Seattle Chapter maintained a steady growth in membership and activity under the energetic leadership of its first president, the late J. B. Warrack, and succeeding presidents and directors.

E. B. (Bill) Hickok is manager.

Planned on a functional application of the organization's requirements, the two-story building will have its upper floor a few steps above Harrison Street, and the lower floor accessible from both Third Avenue West and the large parking area to be provided at the rear.

The Construction Center area of the building will have a large public space with facilities for plan racks, displays of materials and architectural sketches of new construction. The general office with adjacent executive offices, will afford complete control of the public area, with counter facilities provided for checking out of plans and speci-

fications by subcontractors and material suppliers. A wing with a tri-level arrangement will have 24 plan rooms for the use of estimators and quantity surveyors, planned so that it will be obvious at a glance which rooms are available for use. One end of the building will contain a large lounge and meeting room.

A stairway will lead to the lower level, which will include 11 office areas to house associations allied to chapter activities.

Variety of Materials, Finishes

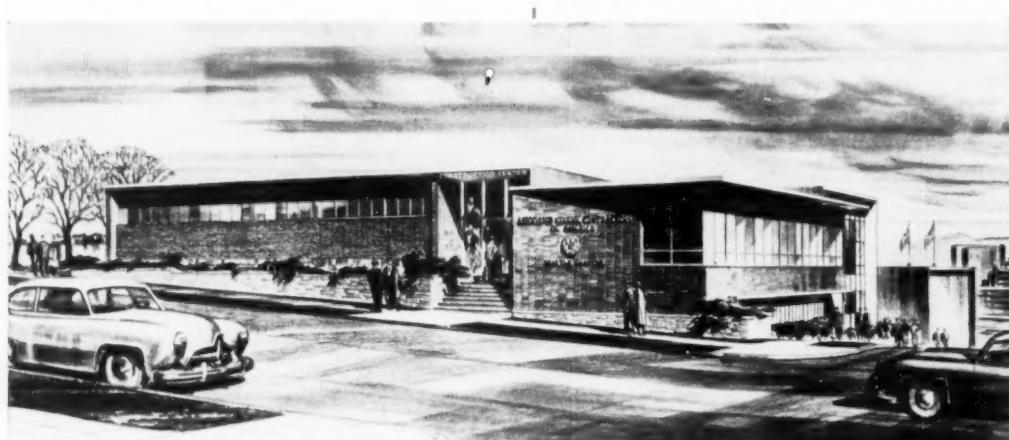
The exterior will be executed in brick and stone veneer, with some areas finished in a rough-sawed cedar boarding. Windows will be aluminum sash, and some Solex heat-absorbing glass and glass block will be employed.

Roofing will be of built-up tar and gravel. The building will be heated with a split system utilizing coils in the floor, combined with an air conditioning system.

Flooring will be asphalt and rubber tile, and terrazzo, depending on the wear anticipated. The floor between the two levels will be a three-inch reinforced concrete slab, using steel bar joists supported on steel I-beams.

The walls will be plastered, and various plastic materials will be employed.

The Houston Chapter, A.G.C., installed its 1950 officers April 17. Retiring President C. A. Schneider, who presented the gavel to Howard T. Tellepsen, reviewed the chapter's accomplishments of 1949.



Artist's conception of Seattle Chapter building shows modernistic lines.

LINK-BELT SPEEDER



as a reporter . . .

I'm going to travel and tell you about Link-Belt Speeder machines, jobs and owners in all parts of this great country.

I like to write about Link-Belt Speeder Shovel-Cranes because I know the complete line is engineered and built to contractors' specifications.

I have already learned that owners appreciate Link-Belt Speeder ruggedness; they know how well they stand up under high pressure road building conditions, digging earth and rock everywhere. And they tell me Link-Belt Speeder distributors are always ready and willing to help with service and maintenance problems RIGHT NOW.

Operators say: "Speed-o-Matic hydraulic controls are wonderful! We can get the speed and steady production that makes the Boss smile—for a change."

This job of reporting on Link-Belt Speeder operations promises to be a cinch. I just tell them where I'm from and owners and operators tell me plenty of good things about their Link-Belt Speeders. And when they're happy and proud to boost their machines, Brother, it's always a pleasure to write this good news to the folks back home.



"They" say the New LS-51 is a Honey!

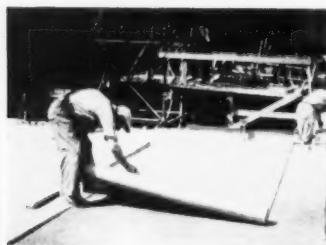
The true word is spreading fast that the new LS-51 is the fastest, easiest operating, most dependable machine in the $\frac{1}{2}$ yard field.

The LS-51 above, equipped with $\frac{5}{8}$ yard bucket is the fifth Link-Belt Speeder owned and operated by Lloyd Vandegrift of Minerva, Ohio. He's been operating shovels for 26 years and he says: "Sure I like my new LS-51, especially the easy operation of Speed-o-Matic controls. I keep the trucks humming all day, and you know what that means."

LINK-BELT SPEEDER



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CLEAN, DUST-FREE FLOORS at reduced cost

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IT'S A "NATURAL" FOR YOU on single-story and multi-story jobs . . . also for curing and protecting driveways, sidewalks, foundations, roads and other concrete slab work or masonry.

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CHAPTERS • BRANCHES

East Texas Chapter Gets Latest Charter

• W. M. Werner Sparks Launching of A.G.C. Group

THE EAST TEXAS Chapter of The Associated General Contractors of America was activated April 3 when W. Murray Werner, national director of District 4, presented the charter to W. R. Price, president of the new chapter. The presentation ceremony and dinner were held in Longview, where the chapter will have its headquarters.

Mr. Werner and other members of the Shreveport, Louisiana, Chapter had been helpful in establishing the new chapter.

Price Named President

Officers of the new chapter are Mr. Price, of the Price Construction Company, Marshall, president; J. Sam Owens, Owens Construction Company, Longview, vice president; and Raymond Cupp, M. Clint Brown Company, Longview, treasurer. Sunnye Hisey is executive secretary.

The new chapter is composed of 19 active and associate members in the Longview, Marshall, Tyler area of eastern Texas.

The presentation ceremony was preceded by a cocktail party given by the Shreveport Chapter for members of

the new group, and a dinner at which the new chapter was the host.

Speakers included Mr. Werner, Mr. Price, and L. C. Allen, president, Bill Hogan, past president, and C. H. Rollins, executive secretary, of the Shreveport Chapter.

The chapter has set as its objectives the promotion of better relations between general contractors and the public; improvement of construction methods; and the raising of standards in the industry.

14 Active Members

Active members of the chapter are: Price Construction Company, J. A. Sharrock & Sons, and Bergstrom & Yates, of Marshall; Tom Wilmoth Construction Company, M. Clint Brown Company, and J. Sam Owens Construction Company, of Longview; Thompson and Morton Company, R. J. Bell & Company, J. B. Byers Construction Company, and Kerr Engineering and Construction Company, of Kilgore; H. E. White Construction Company, W. W. Walton Company, Milo J. Choate & Company, of Tyler; and Joe Gray Construction Company, Carthage.



W. Murray Werner, left, presents charter to W. R. Price.

CHAPTERS • BRANCHES

S. M. Williams Dies

Samuel Marshall Williams, 78, formerly a member of the staff of The Associated General Contractors of America, died at his home in St. Petersburg, Florida, in March after a long illness.

As a member of the A.G.C. staff he took a leading part in the work which led to organization and establishment of the Bureau of Contract Information. Mr. Williams became the first president and treasurer. He held that position from 1929 to 1939.

Mr. Williams was a native of Bedford County, Pennsylvania, where his early days were spent in merchandising. He subsequently was a member of the Pennsylvania Legislature.

Before the first World War he became interested in the good roads movement and was active as a representative of various associations. He joined the A.G.C. staff as manager of its then Engineering Construction Division, and continued there until heading up the Bureau of Contract Information.

He is survived by his widow, two daughters, two sons and a sister.

Austin Joins Carolinas

S. C. (Bob) Austin, well-known in North Carolina highway engineering circles, has joined the Carolinas Branch, A.G.C., as assistant executive secretary, succeeding Tom Gould, it is announced by Executive Secretary Robert Patten.

A graduate of the University of North Carolina in 1921, with a B.S. degree in civil engineering, Mr. Austin had been continuously employed by the North Carolina State Highway Commission except for 1926, when he was an engineer for the construction of roads and bridges in Mexico. He has served in North Carolina as resident engineer, district engineer, assistant division engineer, and lately as state equipment engineer.

Mr. Gould resigned from his position April 15 to join the Material Sales Company, Salisbury, North Carolina.

Mr. Austin's duties will be concerned mostly with the Highway and Heavy Contractors' Divisions of the branch.



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Gorman-Rupp Pumps are GUARANTEED in plain language by us and our distributors. They will pump more dirty water, more hours with less gasoline, will prime quicker and at higher suction lifts than any other self-priming pump. Write us about your pumping problems — ask for a copy of our guarantee.

New Contractors' Pump Bulletin 8-CP-11
furnished on request.

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Annual Meetings of A.G.C. Chapters

Michigan Road Builders

P. M. Thornton, of Thornton Construction Company, Hancock, was elected president at the 22nd annual meeting of the Michigan Road Builders' Association, A.G.C., in Detroit in March. He succeeded C. E. Cooke of Detroit.

Other officers elected were L. A. Davidson, Lansing, and John K. Jackson, Ironwood, vice presidents; and C. Edward Frisinger, of Lewis & Frisinger Company, Ann Arbor, secretary-treasurer. C. J. Carroll is executive secretary.

Directors elected were Harry G. Whitman, General Paving Company, Grand Rapids; Andrew T. Barnes, Cass City; William J. Muchlenbeck, Saginaw; O. E. Gooding, Whittaker & Gooding Company, Ypsilanti; L. A. Davidson; C. E. Frisinger; Frank E. Loselle, Loselle Construction Company, Wyandotte; and Mario J. Calcaterra, Straits Construction Company, Ignace.

Government and A.G.C. representatives who spoke at the two-day meeting were A.G.C. President Walter L. Couse, Detroit; Commissioner Charles M. Ziegler and Deputy Commissioner Harry C. Coons, of the Michigan State Highway Department; A. C. Clark, Deputy Commissioner, Bureau of Public Roads, Washington; and Boyd Armiger, of the A.G.C. Detroit Chapter's employee relations committee. Banquet speaker was J. Lance Rumble, General Motors Corporation, Toronto.

Managing Director H. E. Foreman and A. N. Carter, Manager, Highway Contractors' Division, represented the A.G.C. national office.

New York Election

Alfred E. Budell, president, Industrial Engineering Company, was elected president of the Metropolitan Builders Association of New York City, A.G.C., at the 16th annual meeting April 20. He succeeds H. C.

Turner, Jr., president, Turner Construction Company.

Other officers elected were Philip H. Grove, of Grove Shepherd Wilson & Kruege, and Neil Horgan, vice presidents; and W. J. Barney, Jr., W. J. Barney Corporation, secretary-treasurer. Elected to the Board of Governors were Wilbur Ryan, Alfred Rheinstein, Fred J. Driscoll and Mr. Turner.

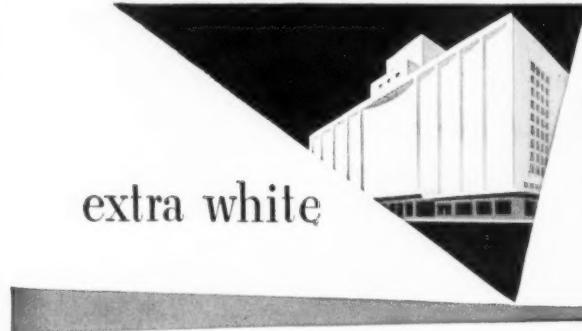
President Walter L. Couse and Managing Director H. E. Foreman of The Associated General Contractors of America were guests.

Buffalo Chapter

Officers of the Buffalo Chapter were reelected for 1950 in a meeting held March 29. Park L. Metzger, Metzger Construction Corporation, is president. Richard C. O'Keefe is secretary.

Rhode Island Chapter

At its annual meeting the Rhode Island Chapter, A.G.C., reelected for 1950 all those who had held office in 1949. The officers for this year are: president, Alvyn B. Conway, of the



extra white

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as white  as snow

TRINITY WHITE Portland Cement



TRINITY WHITE
is a
True Portland Cement!

Rowley Construction Company, Pawtucket; vice president, A. Chester Beals, Providence; treasurer, John M. Sinclair, Providence; secretary, Frederick E. Bowerman, of Bowerman Bros., Providence.

Kentucky Highway Division

Harry O. Wyse, of Lexington, has been elected president of the Kentucky Highway Division, A.G.C., for 1950. The new vice president is N. B. Edwards, of Madisonville. W. O. Snyder, Frankfort, is executive secretary.

Baton Rouge Chapter

Officers elected by the Baton Rouge Chapter, A.G.C., at its meeting on April 4 are: president, L. W. Eaton, Jr., L. W. Eaton Company, Inc.; vice president, Phillip Farnsworth, R. P. Farnsworth & Company; secretary-treasurer, Carver Blanchard, of Baton Rouge. Joseph F. Ryan is executive director.

Akron Chapter

Carl A. Clemmer, of the Clemmer Construction Company, was elected president of the Akron Chapter, A.G.C. The new vice president is Carl Frank, president of the P. L. Frank Construction Company of Ravenna, Ohio. Wayne L. Myers is secretary.

Cleveland Chapter

At its annual meeting in March, the Cleveland Chapter, A.G.C., elected new officers for 1950. C. Earle Pratt, Cleveland Construction Company was made president, Frank K. Harmon, Brown Construction Company, vice president, and James Humel, Humel Construction Company, was elected treasurer. Charles W. Jauch continues as executive secretary.

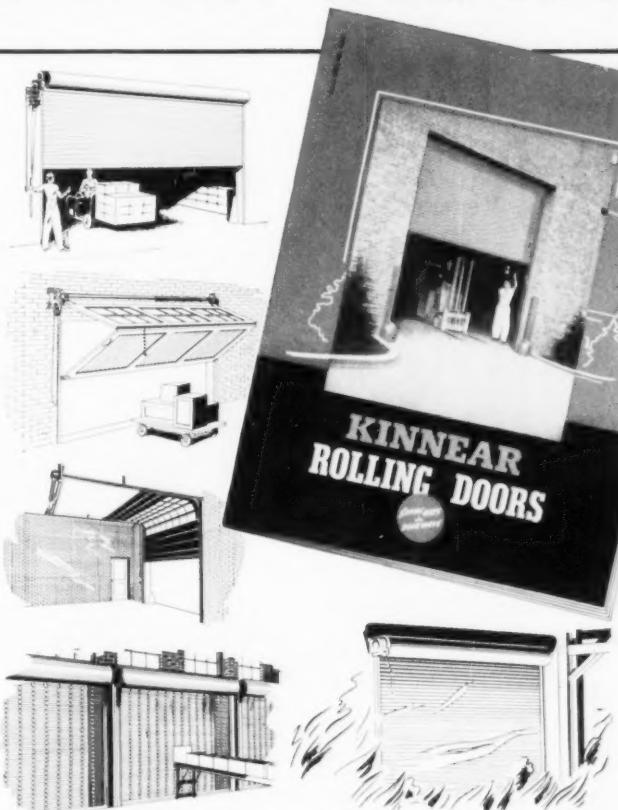
San Antonio Chapter

The San Antonio Chapter, at a regular monthly meeting, reelected Luther Hill, Hill & Combs, as president. Henry Rheiner was elected vice president of the organization, and G. W. Mitchell was reelected as treasurer.

Eastern Washington Builders Chapter

Henry George, Henry George & Sons, is new president of the Eastern Washington Builders Chapter at Spokane. Verne Johnson, Bushum & Rauh, is vice president. Directors are J. L. Hazen, Walter Varnum, Arthur Bengel. W. H. Peacock is executive secretary.

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Kinnear Rolling Doors. The famous interlocking steel-slat doors—*originated by Kinnear*—glide smoothly, easily upward, coiling out of the way overhead. They save floor and wall space. All-metal construction assures extra years of low-cost service, protection against fire, storm, intrusion, and accidental damage. Available with Kinnear motor operators and push-button control.

Kinnear Rolling Fire Doors. The famous "Ak-

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Kinnear Rol-TOP Doors. Section-type upward-acting doors, of either wood or all-metal construction. Paneled for glass as desired.

Kinnear Bi-Fold Doors. Two-section doors of wood or metal that "jackknife" to overhead position. Paneled for glass as desired.

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ROLLING DOORS

Reserve Officer to Colonel

Herman A. Erhart, of Lousiville, commanding officer of the 364th Engineer Construction Group, a reserve unit sponsored by the A.G.C. Kentucky Highway Branch in the Army Affiliation Program, has become the first Army reserve officer in Kentucky to be promoted to colonel since the end of World War II. Erhart is president of the Erhart-Knopf Construction Co. He entered military service as a private in the National Guard in 1912, and has served in every grade up to the present one. During World War II he commanded the 2805th Engineering General Service Battalion in the Pacific. Captain Paul M. Jewell, engineering officer for the Kentucky Military District, pins on the new eagles.

The A.G.C. of Massachusetts is operating a speakers' bureau in cooperation with high schools and colleges in the Boston metropolitan area.



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CHAPTERS • BRANCHES

Contractors' Profits Discussed

Steps that general contractors can take to help produce profits and minimize risks were discussed by Guy C. Kiddoo, vice president of the First National Bank of Chicago, at the annual meeting early this year of the A.G.C. of Minnesota.

For example, he pointed out, operations must be geared to financial resources, to some extent at least.

Dun & Bradstreet figures for 1948 were cited, showing that for 149 contractors, the median percentage of fixed assets to tangible net worth was 12.9 per cent, meaning that an average contractor with capital of \$100,000 would have invested in fixed assets not more than \$12,900 and would have about \$87,000 in current working capital.

Mr. Kiddoo compiled four general classifications of contractors. He found that for 21 firms in the building and general construction field, the percentage of working capital to net worth ranged from 40 to 100 per cent, with the median from 85 to 90 per cent.

Highway contractors ranged from 20 to 95 per cent, with the median around 70 per cent.

A wide range was found among heavy contractors, but even there where large amounts of equipment are required, the range was from 40 to 90 per cent, with two-thirds of net worth generally represented in working capital.

Working capital of mechanical and sub-trades ranged from around 40 to 85 per cent, with the median at about 70 per cent.

Dun & Bradstreet figures showed the 149 contractors previously mentioned turned over their tangible net worth a median of 5.06 times a year, and net working capital 7.87 times.

While bidding naturally is the most important factor in success or failure, Mr. Kiddoo blamed "inadequate cost records and loose accounting practices" to a large extent for low profit percentages in contracting businesses. In figures for 70 types of business from 1943 to 1947, inclusive, contractors ranked 60th in profit percentage.

Referring to the current tight bidding, Mr. Kiddoo suggested that the construction industry may have over-expanded its capacity somewhat, and recommended weeding out obsolete equipment and unproductive men, rather than "to continue ruinous competition at cut-throat prices . . ."

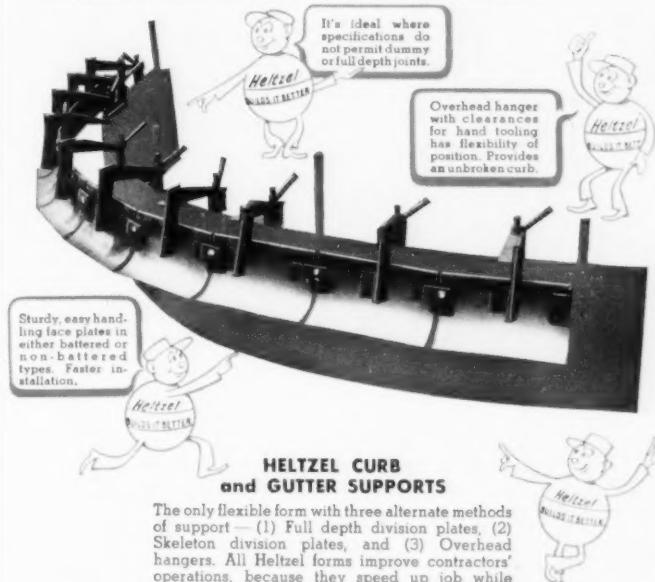


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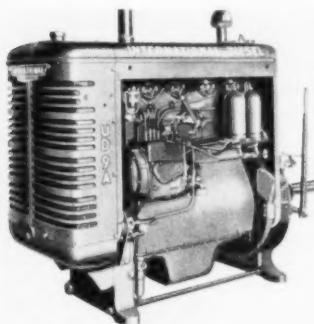
BID COORDINATION

BID OPENING DATES OF LARGE PROJECTS

OPENING DATE	AGENCY	PROJECT
May 23	Bureau of Reclamation Denver Federal Center Denver, Colorado	Specs. 2938. Keyhole Dam, Keyhole Unit, Cheyenne Division
"	Corps of Engineers Louisville, Ky. Dist.	Inv. No. Civeng-15-029-50-86. West Fork Mill Creek Dam, Ohio spillway & outlet works
May 24	Corps of Engineers St. Paul, Minn. Dist.	Lower lock & dam St. Anthony Falls, Miss. River at Minneapolis
"	Corps of Engineers Alaska District Anchorage, Alaska	Inv. No. S95-507-50-17. Takotna, Alaska, fence project
About May 24	Atomic Energy Comm. Santa Fe Operations Los Alamos, N. Mex.	Inv. No. 291-50-53. Open spandrel steel arch bridge across Los Alamos Canyon
May 25	Corps of Engineers Alaska District Anchorage, Alaska	Inv. No. S95-507-50-14. Newenham, Alaska, fence project
"	Corps of Engineers Dept. of the Army Omaha, Nebr. District	Inv. No. Civeng-25-066-50-158. Earthwork, Stage 1, Oahe Reservoir Proj.
"	Bureau of Reclamation Denver Federal Center Denver, Colo.	Specs. 3000. Earthwork pipe lines & structures, Lindmore Irrigation Dist., Friant Kern Canal, Central Valley project, near Lindsay, Calif.
June 1	Bureau of Reclamation Denver Federal Center Denver, Colo.	Specs. 2985. Machine shop, ware- house, utilities, Coulee Dam Division, 30 miles northeast Odair, Wash.
June 13	Veterans Administration Washington 25, D. C.	500-bed G.M. hospital, St. Louis, Mo.
June 20	Texas State Highway Comm.	Highway construction, Texas
About June 20	U. S. Atomic Energy Comm. Santa Fe Operations Los Alamos, N. Mex.	Inv. No. 291-50-59. Laboratory bldg. at Los Alamos, N. M.
June 21	Texas State Highway Comm.	Highway construction, Texas

Reporting agencies: Department of the Army, Corps of Engineers; Department of the Interior, Bureau of Reclamation; Department of the Navy, Bureau of Yards & Docks; Bureau of Community Facilities, and Public Buildings Administration of the General Services Administration; Department of Commerce, Bureau of Public Roads; Veterans Administration; U. S. Atomic Energy Commission. State, municipal and private projects reported by The Associated General Contractors of America.

Diesel Power Units—International Harvester Co., 180 N. Michigan Ave., Chicago 1. New UD-9A 4-cylinder power units and automotive engines have increased power over earlier "9" series models. New features include: re-designed pre-combustion chamber and piston; "A" series L.H. fuel injection pump; simplified injection nozzles; counterbalanced crankshaft and new connecting rods. Improvements establish higher compression ratio, 15.7 to 1 compared to 14.4 to 1, and greater burning efficiency. UD-9A delivers 62.5 h.p. at 1,600 r.p.m. under intermittent load. Weight of power unit is 2,060 lbs.; dimensions are: 67 $\frac{3}{4}$ " long, 28-1/16" wide, 52" high. Automotive engine operates at governed 1,800 r.p.m., delivering 70 h.p. Dimensions are: 41 $\frac{1}{2}$ " long, 24" wide; 42 $\frac{1}{2}$ " high. Engine weight is 1,500 lbs.



New International UD-9A power unit

Truck Lift Gate—Anthony Co., Streator, Ill. "Pick-up" lift gate attaches to rear of any $1\frac{1}{2}$ and 3-ton pick-up truck. Gate is operated by 2 hydraulic hoist cylinders and can lift, lower or hold at any height as much as 800 lbs.



Anthony "Pick-up" lift gate

READY!

Takes less than 30 seconds to prepare RAMSET TOOL with power charge and choice of 65 coated steel fasteners.



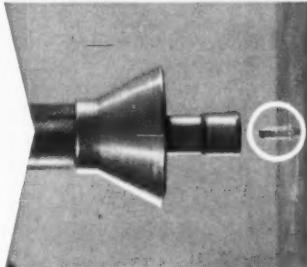
RAM!

Place light, compact tool against work, locating fastening point as accurately as desired. Then tap lightly and the fastener is . . .



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Instantly, tightly, cleanly, easily. No drilling, chipping or plugging. Less than a minute from start to finish.



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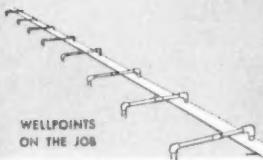
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Bottom-Dump Hauler—*R. G. LeTourneau, Inc., Peoria, Ill.* Model E-16 "Tournahopper" has heaped capacity of 16 tons or 15 cu. yds. Bowl is 9'2" x 9'2". It is powered by "C Roadster Tournapull" prime mover available with choice of 3 engines—G.M. 6-71, Cummins HRB-600 or Buda 6-DC-844. Bottom-dump doors swing upward along outside of bowl as they open. Positive electric control of self-cleaning doors permits controlled ejection by opening to any desired width. Clearance with bowl doors opened is 22"; with bowl doors closed, 19 $\frac{3}{4}$ ". It has 90° left and right turning angle, giving minimum turning radius of 14'. It has multiple disc air brakes on all 4 wheels and is mounted on 18:00x25 tapered bead tires. Over-all measurements are: length, 24'7 $\frac{1}{4}$ "; width, 8'4 $\frac{1}{4}$ "; height, 10'4 $\frac{1}{4}$ "; bowl, 11' long by 7' wide with maximum depth of 4'9-2 3/8"; height when dumping 11'2", with maximum dumping angle of 85°; total weight, 23,320 lbs.



"Tournahopper"

Rear-Dump Hauler—LeTourneau announces E-9 "Tournarocker" of 9-ton or 10-cu. yd. heaped capacity and 11'x7' top opening. Body is 7' high for rear loading. It is powered by "D Roadster Tournapull" with G.M. 4-71 engine. It features positive power electric steering by "Tournatorque"



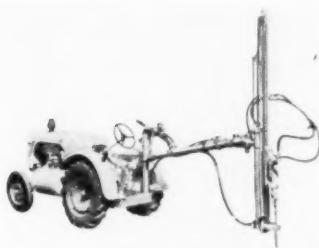
"Tournarocker"

motor and 90° turning radius which enables it to turn around in 14'5" radius. It dumps material behind rear tires by raising rocker body with cable and sheave arrangement which is actuated by "Tournatorque" electric motor. Forward speeds range from 2.77 m.p.h. to 25.27 m.p.h.; reverse speed is 2.76 m.p.h. E-9 has multiple disc air brakes on all 4 wheels and is mounted on 18:00x25 tapered bead tires. Over-all measurements are: length, 24'7 $\frac{1}{4}$ "; width, 8'4 $\frac{1}{4}$ "; height, 10'4 $\frac{1}{4}$ "; bowl, 11' long by 7' wide with maximum depth of 4'9-2 3/8"; height when dumping 11'2", with maximum dumping angle of 85°; total weight, 29,840 lbs.

Scraper—*Findlay Division, Gar Wood Industries, Findlay, Ohio.* Model 625 4-wheel cable-operated scraper has 24.5 cu. yd. heaped capacity and 19.2 cu. yd. struck. Designed for use with Allis-Chalmers HD-19 tractor, it has bowl and gate proportions of Gar Wood 500 series scrapers. Positive forced ejection is accomplished by sliding end gate which moves forward to eject all material in bowl. It is returned to digging position by heavy-duty springs. Cutting edge is bowed and of 3-piece construction. Heavy-duty 8" ball in socket (shimmed for wear) is provided in 5th wheel to maintain strength and give flexibility. Pusher plate is curved to accommodate arc of dozer blade. Three tire options are offered: Front, 21:00x25; rear, 21:00x29; front, 24:00x29; rear, 24:00x29; front, 24:00x29; rear, 24:00x33.

Drills—*Kennametal, Inc., Latrobe, Pa.* "Twist-type" masonry drill features blade of "vacuum-sintered" cemented carbide. Features of drill are angled cutting point and "faster" spiral to clean out dust at accelerated rate. They fit standard rotary electric drills and are made in 12 sizes, from $1\frac{1}{4}$ " through 1" in increments of $1\frac{1}{16}$ ". Described in Bulletin K-109, available from manufacturer. Line of "tri-point" rock drills, for drilling granite, sandstone, hard limestone, concrete, etc., have cutting tips of "vacuum-sintered" cemented carbide. They are used in air or electric hammer-type drills. Diameters range from $3\frac{1}{8}$ " to 1". Lengths are from $7\frac{3}{8}$ " to 12" depending on diameter. Leaflet K-111, available from manufacturer, describes drills.

Drill—Le Roi Co., 1700 S. 68th St., Milwaukee 14. One-man operated, self-propelled wagon drilling unit utilizes Le Roi's 105 "Tractair" tractor-compressor. Known as "Mobildrill," it consists of swinging boom which extends out from "Tractair" platform and universally mounted wagon drill guide shell for 6' steel change. Le Roi Cleveland H10 45-lb. class sinker operates off compressor. It will drill angle, vertical or horizontal holes at any elevation and can be equipped with air motor-powered boom. Tractor is capable of operating over rough terrain. It has 4 forward speeds up to 12 m.p.h. and one reverse gear. Drill, blow and feed controls are centrally located at guide shell. Bulletin T16 describing machine is available from manufacturer.



Le Roi "Mobildrill"

Truck Mixers—T. L. Smith Co., 1853 N. 32d St., Milwaukee 10. New "Loadlimit" models are designed to haul full-rated truck mixer payloads and still meet highway load limitations. Reduced weight is accomplished through elimination of parts and assemblies which are not basic or necessary to mixer operation. They can be quickly converted to standard truck mixer or agitator, and vice versa. New machines are available in 2, 3, 4 $\frac{1}{2}$ and 5 $\frac{1}{2}$ cu. yd. sizes with higher ratings for agitators. Bulletin on new line is available from manufacturer.

Excavator—Marion Power Shovel Co., Marion, Ohio. One cu. yd. machine, Type 43-M, serves, with various front-end combinations, as shovel, dragline, clamshell, crane, backhoe and pile driver. Single boom can serve for both shovel and backhoe work, but gooseneck boom is optionally available for backhoe service. Single boom, with butt-jointed sections, is used for dragline, clamshell, crane or pile driver service.



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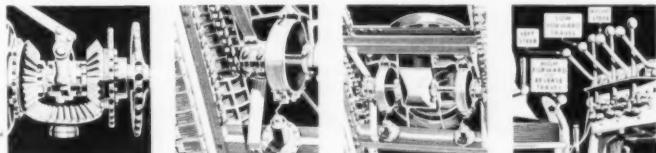
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Power Saw—*Mall Tool Co., 7729 S. Chicago Ave., Chicago 19.* Model 87 "MallSaw" is 3" capacity heavy-duty portable power saw weighing 12 lbs. It rips, cross-cuts and angle-cuts rough or finished lumber. Bevel-depth attachment permits straight cuts from 11/16" to 2-31/32" and up to 45° bevel cuts from 1/4" to 17/8".



Model 87 "MallSaw"

Other attachments are available for grooving mortar joints; cutting plastics, metal and hardened steel; and mortising, cutting or scoring compositions, tile, stone and concrete. Operator is protected from saw blade by telescoping blade guard. Blade housing is of light-weight aluminum and magnesium alloy. Ball and needle bearings are used throughout. Both 115 v. and 230 v. AC-DC models are available.

Bosun's Chair—*Safway Steel Products, Inc., 6231 W. State St., Milwaukee 13.* Foot-operated one-man platform hoist consists of rigid tubular steel cage which is moved by winch. Worker sits on bicycle-type saddle and operates bicycle pedals to raise or lower hoist. Seat height is adjustable. Hoist can be moved as fast as 25' per minute. Bosun's chair has rated capacity of 625 lbs. It is furnished with 150' of 1/4" 6x19 plow steel wire rope. Unit weighs 75 lbs. Cable runs over pulleys at top and back of unit, arranged so that cage will always hang

in upright position. Waist-high guard rails with center support posts are provided. Two hard rubber rollers on front of unit prevent marring of working surfaces and make it easier to raise and lower chair. Rollers can be tilted to fit cylindrical surfaces.



Safway bosun's chair

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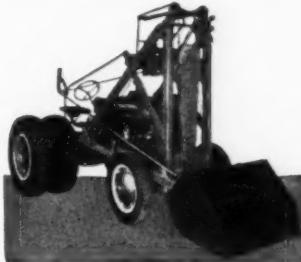
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You will speed your work with Do-all. Drills a ¾" hole in ordinary concrete 1" deep in 15 seconds (or less). Easy to operate; only 15 lbs. Runs from lamp socket or generator.

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Adjustable Clamp—Merrill Brothers, 56-62 Arnold Ave., Massapequa P.O., New York City. "Adjusta-Clamp" will lift any metal object up to 12" thick that its adjustable jaws can grip. Movable gripping jaw can be set by hand to accommodate part to be lifted. It can lift from horizontal to vertical position without changing of grip.

Pavers—Ransome Division, Worthington Pump and Machinery Corp., Dunellen, N.J. Fully automatic, hydraulically controlled water system is now standard equipment on 34E dual drum pavers. Automatic system goes into operation when skip is approximately 4' off ground, and closes water valves completely when required

amount of water has entered drum. Automatic water cut-off delaying action, adjustable to maximum of 12 seconds, eliminates need for operator to hold skip up until proper quantity of water has been discharged.

Forms—Symons Clamp & Mfg. Co., 4259 W. Divernon Ave., Chicago 39. Several improvements are announced in wood concrete forms. Corners are now reinforced with steel corner plates. Where extremely heavy pressure is encountered, panels may be reinforced with steel cross-members. Ring shank nails are now used for securing sheathing to frame. Frames are now recessed where steel straps secure joints, allowing frames to bear solidly against each other. Plywood used in 2'x6' and 2'x8' sizes (3 $\frac{1}{4}$ " exterior grade AB-DFDA-marine) is finished with sealed edges ready for assembly. Steel wedges used in Symons system are now curved at each end to prevent wedges from digging into wood.

Generator Units—Cummins Engine Co., Columbus, Ind. Cummins diesel-powered 60-cycle electric generator units are offered in 40, 50, 60, 75, 100, 125, 200 and 250 kw. ratings. They are of alternating current type, 50-60 cycle, 3 phase 3-wire, 3-phase 1-wire. Unit consists of engine, direct-connected to single bearing generator, engine and generator being mounted on common structural steel sub-base. Optional equipment offered for units are: automatic over-speed shut down control; automatic high temperature and low lubricating oil pressure shut down; complete marine-type or radiator-type cooling systems; hydraulic governor; water-cooled exhaust manifold; generator-mounted package control unit. Special generator voltages and kw. ratings are also available.



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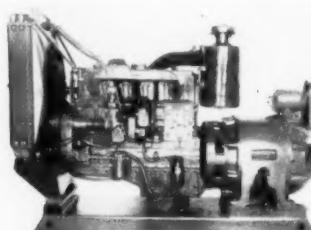
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SEATTLE 4



Model NBSGA Cummins generator unit

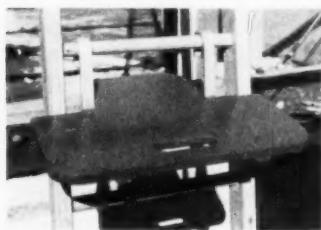
NEW EQUIPMENT • MATERIALS

Batcher—C. S. Johnson Co., Champaign, Ill. New "Lo-Bin" trolley batcher has pneumatic-tired wheel and 2-bar assembly. Batcher has maximum bin capacity of 30 tons and charging height of 9½'. With flared extension panels removed, bin measures 7½' in height and holds 8 tons. Over-all height of 20-ton panel unit (shown in picture) is 8½'. Batchers can be furnished to handle 2, 3 or 4 aggregates. Traveling aggregate hopper has 22 cu. ft. capacity and is cantilevered to ride out beyond end of track and dumps directly into mixer skip.



Johnson "Lo-Bin" trolley batcher

Ladder Platform—San Francisco Scaffolding Co., 2350 Jerrold Ave., San Francisco 24. A 15"x20" solid wood platform, reinforced with 1" steel bands, will fit any ladder. It can be used as a step to work from, or as scaffolding hanger or tool and equipment rack.



San Francisco Scaffold Co. ladder platform

Scaffolds—Up-Right Scaffolds, 1013 Pardee St., Berkeley, Calif. Aluminum alloy "tube-and-coupler" scaffolds can be erected in any size or shape. Consisting of couplers, locking tubes and swivel plates, they will carry load of over 75 lbs. per sq. ft. with safety factor of 4.

MORE NEWS
ABOUT THE NEW



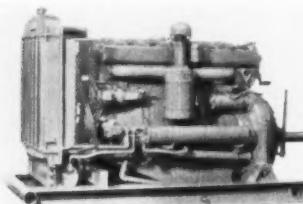
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Diesel Engines—Murphy Diesel Co., 5333 W. Burnham St., Milwaukee 14. Refinements in design and increased number of models are announced. Five 4-cylinder and 6-cylinder models, ranging in output from 90 to 200 h.p., are now available. Greater power and longer life are claimed for new models which retain Murphy principles of "true" diesel operation, plain open combustion chamber, 4 valves per cylinder, hydraulic servo-type governor. Literature available from manufacturer.

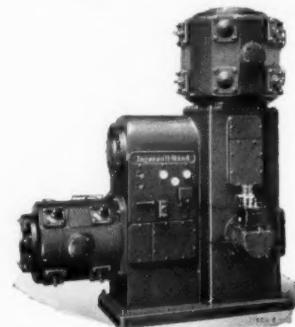


Murphy Diesel engine

Loader—Eimco Corp., 634 S. Fourth West St., Salt Lake City 8. "Rocker-Shovel 104" is crawler-mounted loader operating on Eimco rocker-arm principle, throwing load overhead to discharge, eliminating need of turning to dump. Powered by 48 h.p. diesel engine or 30 h.p. electric motor, it is constructed of abrasion-resistant alloy steel materials. For heavy-duty rock loading it is equipped with 1½ cu. yd. bucket. For light rock and earth it uses 1½ cu. yd. bucket and for sand and gravel a 1¾ cu. yd. bucket. It has 5 speeds forward and one reverse. Track gage is 44" and track shoe width is 13". Machine weighs 22,000 lbs.

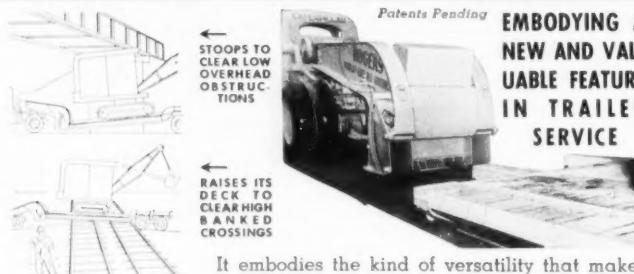
Compressor—Ingersoll-Rand Co., 11 Broadway, New York 4. New line of electric-driven compressors range in size from 125 to 350 h.p. for continuous full-load service and 2-stage compression to 80-125 p.s.i. discharge pressures. Designated as XLE, new line embody single vertical low-pres-

sure compressor cylinder, horizontal high-pressure cylinder and synchronous motor mounted directly on crank-shaft. Innovation is "pipeless, through-frame air flow." Air enters and leaves compressor through main air connections on frame and is led to and from cylinders and intercooler through large passages within frame.



Ingersoll-Rand XLE compressor

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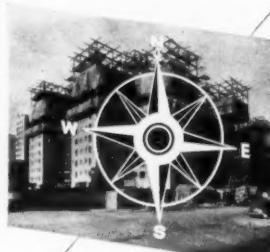


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THE CONSTRUCTOR

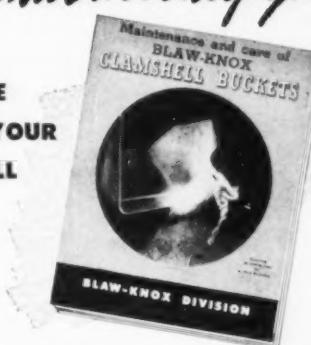
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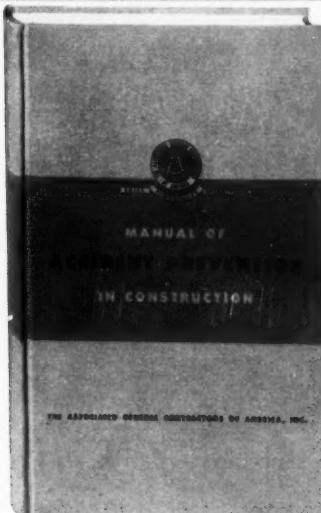
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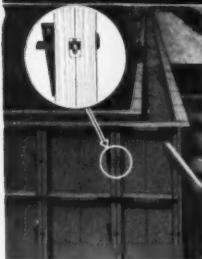
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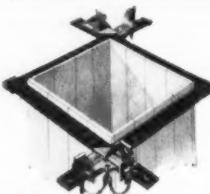
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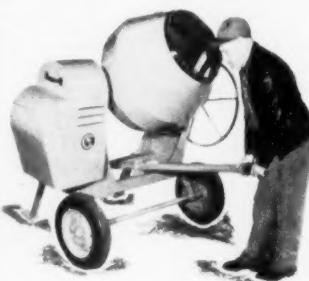
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NEW EQUIPMENT • MATERIALS

Mixer—*Construction Machinery Co., Waterloo, Iowa.* End-discharge 31½S "Wonder" tilting mixer has lower charging height and 2-way discharge design. Feature is close coupling of drum power mechanism. Powered by air-cooled engine, tilter has "Figure 8" mixing action; semi-steel cast drum with leak-proof alloy steel cone; Timken-equipped drive and drum shaft; roller chain drive with cut steel sprockets; one-piece welded steel frame with cantilever springs; pneumatic tired wheels.



C.M.C. "Wonder" tilting mixer

Crane—*Construction Machinery Co.* offers new "Han-D-Crane" that operates off its own power and can be towed behind truck, jeep or tractor. It has all counter-balancing features and cradle boom structural design of original "Han-D-Crane." It has aircraft-type, swivel-wheel mountings and rocker arm trailer frame.

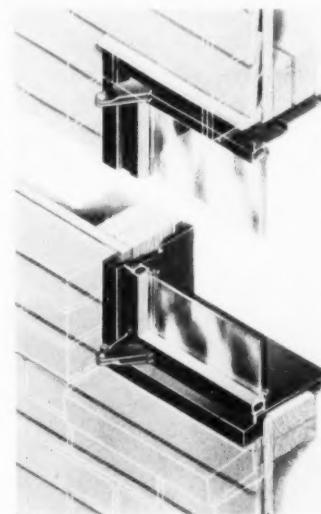
Plaster-Mortar Mixers—*Kwik-Mix Co., Port Washington, Wis.* Changes are announced in design features of 6 cu. ft. Model 6-P and 10 cu. ft. Model 10-P. Over-all width of 6-P may be reduced from standard 44" to 33" by removing 4 bolts and telescoping axle. Easier cleaning of drum is made possible by toggle and lever arrangement, located near operator, which opens drum drain plug. Major improvement in 10-P is automatic water measuring tank which is self-cleaning.

Tamper—*Barco Manufacturing Co., 1803 Winnemac Ave., Chicago 40.* "Pegson Rammer" is earth-fill tamper designed for use in restricted areas. It is self-contained with ignition supplied by magneto. It operates on

modification of rocket principle, jumping upwards from thrust of power cylinder against "foot" and dropping by its own weight. Gasoline tank holds about 2 qts. of fuel, which is mixture of 1½ pt. of S.A.E. 30 or S.A.E. 40 oil to one gal. of gasoline. It operates over 2 hours on tankful.

Trailer—*Martin Machine Co., Kewanee, Ill.* Model 333 "Carryhaul" tilt-type trailer has low platform for greater overhead clearance. It is 16" from ground to platform. Features of trailer are low center of gravity and lesser angle of incline. Rear end of platform lowers to ground.

Steel Window Unit—*Detroit Steel Products Co., 31½ Griffin St., Detroit 11.* "Fenestra" residence casement window is offered with steel outside and inside metal trim. Window, screen and storm sash have Bonderized, prime-painted frames and bronze-lacquered hardware and screen cloth. Trim is galvanized and Bonderized and consists of one-piece sections coped and fitted for secure attachment. Head members lap over jamb members. Head and jamb sections are 18-gage, and sill is 16-gage galvanized steel. Outside sill and inside stool project 3½" beyond jamb members.



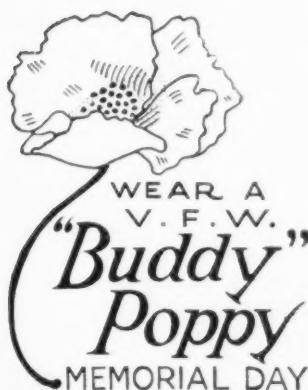
Steel-trimmed "Fenestra" residence casement

NEW EQUIPMENT • MATERIALS

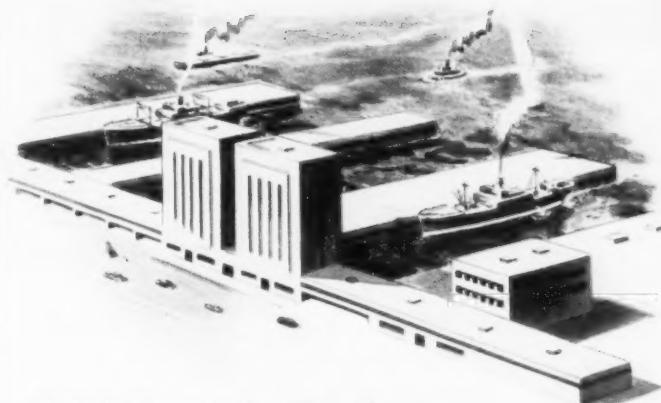
Brush Clearing Machine—American Steel Dredge Co., Ft. Wayne, Ind., "Bushwacker" is 14-ton machine mounted on crawler-tractor unit and powered by G.M. 2-cycle 168 h.p. diesel engine. It is 11' wide, 21 $\frac{1}{2}$ ' long and clears swath 6' wide at speeds from 11 $\frac{1}{2}$ to 5 m.p.h. According to manufacturer, it will reduce to small fragments trees up to 8" in diameter and all undergrowth in one pass over wooded area. Topsoil is not disturbed. Machine has 20 19 $\frac{1}{2}$ -lb. chrome manganese steel "flails" attached by chains to revolving steel drum mounted on shaft at front of machine and partially enclosed within heavy steel housing. Flails, traveling at about 11,500 f.p.m., strike growth with such force that fibers are shredded. Trees and bushes are reduced to small fragments through further contact with flails as growth is carried back against drum housing. A movie of machine in operation has been made and is available from manufacturer.



"Bushwacker"



THE CONSTRUCTOR, MAY 1950



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Hauling Unit—Euclid Road Machinery Co., Cleveland 17. Model FDT bottom dump Euclid is presented in new catalog, Form No. 250. Improved features which are presented include: option of 21:00x25 or 24:00x25 drive and trailer tires, air assist clutch, new driver seat, 190 or 200 h.p. diesel engine and new trailer hopper design that sheds wet, sticky material quickly.

Pipelaying—International Harvester Co., 180 N. Michigan Ave., Chicago 1. Pipeline construction with new International TD-24 and other tractors of 12-model International line is featured in new folder, Form A-319-NN. On-job action shots illustrate folder and owner and operator performance reports are included in captions. International design, construction and operating features are described.

Tractors—International has issued 2 folders on crawler tractors. Form

A-420-MM explains direct transmission-to-track power train of typical International. Form A-419-MM explains tractors' 3-point track suspension. Sketches illustrate function of front stabilizer in preventing misalignment and minimizing leverage loads.

Concrete Curing Compound—Hunt Process Co., 7012 Stanford Ave., Los Angeles 1. Folder presents "Hunt Process-Clear," transparent membrane for curing concrete. It discusses methods of concrete curing, explains what product is and where it should be used. Advantages are listed, method of application described and quantities required for smooth finish, rough finish and "pavement" finish are listed. Special curing suggestions are given. Other leaflets present "Hunt Process-Black," and "Hunt Process-Pigmented."

Scrapers—Western Equipment Mfg. Co., P.O. Box 105, Glendale, Calif. Leaflet presents "Leveland" scraper

for use with any tractor with hydraulic pump and control valve. Its operation in ripping earth is pictured and described. Specifications are given. "Overland" scraper for use with Ford tractor is presented in another leaflet which illustrates its ripping and loading operations. Specifications are given.

Pipe Detector—Detector Co., 5637 Cahuenga Blvd., North Hollywood, Calif. Detector Model 505 is pictured and described in folder (Form U) which explains operation and presents advantages of new metal case. Specifications are given.

Crushers—Gruendler Crusher & Pulverizer Co., 2915 N. Market St., St. Louis 6. Bulletin BR-35-10 presents line of gravel crushing and screening plants. Details of screens, crushers, elevators, conveyors are illustrated and described. Specifications for all models in line are given. Bulletin BM-10 presents Series 10

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NEW LITERATURE

jaw crushers, illustrating features of design. Specifications are given of 4 models in line. Page shows crushers at work.

Compressors, Drills—Worthington Pump and Machinery Corp., Harrison, N.J. Contractors' model 60' portable compressor is presented in Bulletin H-850-B71. Details of design are illustrated and described and specifications and dimensions are given. • Bulletin H-1200-B36A describes 3 models of Worthington wagon drills: UMW-40, with 4" cylinder bore; UMW-35, with 3½" cylinder bore; UMW-30, 3" cylinder bore.

Diesel Engines—Cummins Engine Co., Columbus, Ind. Sixty-eight high-speed diesels for automotive, industrial and marine applications, covering power range from 50 to 550 h.p., and 3 medium-speed diesels are described in new catalog. Listed for first time are 27 new Cummins models introduced within last 12 months. Charts list major specifications for each engine, and torque, h.p. and fuel consumption data at all r.p.m. and load conditions within range of each engine are presented in "curve" form.

Tractor—Caterpillar Tractor Co., Peoria 8, Ill. D8 diesel tractor is presented in illustrated booklet, Form 12676. Features of this track-type tractor are discussed and illustrated along with complete specifications.

Engines—Caterpillar booklet, Form 12725, presents latest and most powerful Caterpillar diesel engines, Models D397, D386, D375, D364. Advantages and qualities of engines are covered and complete specifications and performance charts are included.

Loader—Mandt Manufacturing Co., Columbus 8, Ohio. Catalog 58-10 presents Model 58 hydraulic swing loader. Features of loader and its operation are described and illustrated and specifications are given.

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3 DW-10's Cable Controlled.
1 No. 12 Auto Patrol S/N B T 1611.

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Its 50' hose eliminates many changes of location, saves time and makes the hard-to-reach places easily accessible.

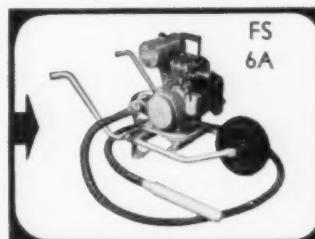
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Sidewalk Paver—*Dotmar Industries, Inc., 503 Hanselman, Kalamazoo, Mich.* Bulletin 50 describes Dotmar paver for laying integral gutter, curb and sidewalks, or sidewalks alone, up to 78" wide. On-job pictures are shown, various types of available screeds and trowels are described and complete specifications are given.

Spreaders, Hoists—*Hercules Steel Products Corp., Galion, Ohio.* Number of bulletins are offered presenting features of various Hercules products. Included are bulletins on: cement spreader, medium-duty hoists and dump bodies, JDX low-mount hydraulic hoist, split-shaft power take-off, tire and tool pack dump body.

Calculating Machine—*Remington Rand, Inc., 17th Floor, 315 Fourth Ave., New York 10.* Booklet AD-416, *Blueprint for Figure-Fact Efficiency*, presents uses of "Printing Calculator" for contractors, showing how it may be used in preparing payrolls, figuring cubic content, providing data for compensation and governmental reports and checking invoices.

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Standard Steel Works, NORTH KANSAS CITY, MO.

Reinforcing Bars—*Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80.* New bulletin, *Specialized Steel Service for Contractors*, features "Hi-Bond" reinforcing bars, designed to give greater bond between steel and concrete. Other featured products include: electric-welded wire fabric, steel forms for concrete joist construction, steel spirals for concrete reinforcement, expanded metal, reinforcing accessories, caisson rings, structural, safety steel plate, hot and cold finished carbon and alloy steel bars, plates and sheets and stainless steel in all forms.

Towing Type Tractor—*M-R-S Manufacturing Co., Flora, Miss.* M-R-S 125A is described in leaflet, Form 123. Capacities and construction features of rubber-tired unit are described and illustrated.

Building Panels—*Detroit Steel Products Co., 31 1/2 Griffin St., Detroit 11.* "Fenestra" steel and aluminum building panels are described in new catalog. Featured are Type "C" wall panel, of sandwich construction, for exterior and partition walls; Type "D" deck and floor panel for floors and long-span roofs; Type "AD" deck and floor panel, similar to Type "D" but providing construction with flat upper and bottom surface. Also described are acoustically treated panels, "Holorib" steel deck for roof spans up to 8'6", loading tables, acoustic roofs and reinforcing floor forms. There are 13 pages of detail drawings, fire resistance ratings, methods of panel electrification, panel selection tables and specifications.

Heat-Absorbing Glass—*Mississippi Glass Co., 88 Angelica St., St. Louis 7.* Catalog on "Coolite" glass shows typical applications in industrial buildings, schools and institutions. Facts covering heat absorbing and glare-reducing properties of glass are presented. Complete specification data are included.

NEW LITERATURE

Conveyors—Pioneer Engineering Works, Minneapolis 13. Conveyor handbook presents 2 plans for ordering conveyors—Plan 1, covering pre-engineered conveyors, and Plan 2, covering job-engineered types. Booklet tells how wide and long belt should be, shows correct angle of incline, spacing of idlers, motor h.p. required. Illustrated.

Aluminum Paint—Aluminum Co. of America, 601 Gulf Bldg., Pittsburgh 19. Comprehensive 32-page booklet describes advantages of aluminum paints, discusses 3 main types and selection and describes their uses on various surfaces. Section is devoted to questions and answers and coverage table is included.

Safety Equipment—Willson Products, Inc., Reading, Pa. Catalog presents product information on protective equipment to meet specific eye and respiratory hazards. In addition it contains reference data on heat-treated and filter glass, use of plastics in eye protective equipment, Bureau of Mines approvals on respiratory protective devices. Presented in chart form are respiratory hazards and how to combat them.

Road Building Equipment—All Purpose Spreader Co., Elyria, Ohio. Folder presents full line of wideners, base pavers, trench rollers, widening chippers, spreaders.

British Plant for Euclid

Euclid Road Machinery Co. is establishing a subsidiary in Great Britain to manufacture Euclid earth-moving equipment. The company, known as Euclid (Great Britain) Ltd., will have manufacturing facilities in Glasgow, Scotland. H. T. Monson, in charge of industrial engineering and factory management at the Cleveland plants of the company, will be managing director of the English operation.

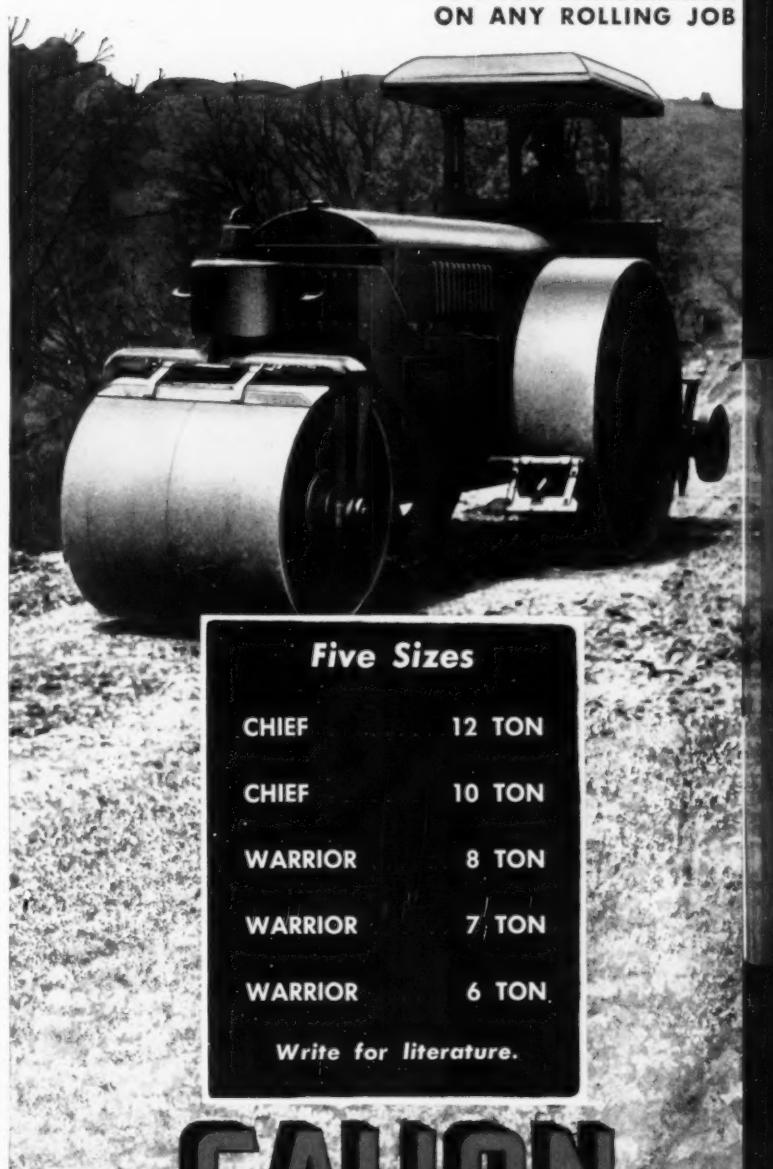
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William Okos has been appointed sales manager of COMPLETE MACHINERY AND EQUIPMENT CO. He was formerly field engineer for Gates Rubber Co. of Denver.

Kentner W. Shell has been appointed assistant to Robert Jones, sales manager of the Soil Stabilizer Division of HARNISCHFEGER CORP.

R. S. Stevenson has been appointed general sales manager of ALLIS-CHALMERS TRACTOR DIVISION. He succeeds

Marshall L. Noel, who has joined Tractomotive Corp. as vice president and treasurer. Mr. Stevenson has been assistant general sales manager since 1948.

Fred B. Croner has been made a vice president of MARMON-HERRINGTON CO., in charge of procurement. George H. Freers has been named vice president in charge of engineering.

Columbus Basile has been elected vice president for operations of LINK-

BELT SPEEDER CORP. He has been shop superintendent of Link-Belt Co.'s Caldwell plant in Chicago since 1947.

LONE STAR CEMENT CORP. is constructing a new cement plant near Roanoke, Va. The plant, to be erected at a cost of \$6,000,000, is to have an annual productive capacity of 1,500,000 barrels of cement and should be in operation early in 1951. Walsh Construction Co., New York, and Ralph E. Mills Co., Salem, Va., both A.G.C., are general contractors for the new plant.

HD-19 Service Manual

A new 287-page service manual featuring Allis-Chalmers' HD-19 torque converter equipped crawler has just been released by the company's Tractor Division. Instructions include a complete guide on proper operation, maintenance and repair of the tractor.

The book is separated into 23 sections. Sections one through 19 feature a general description, complete specifications and detailed pictorial and written description of the various assemblies of the machine and instructions for the proper adjustments and repairs when rebuilding these assemblies.

Section 20 describes special equipment available for the HD-19. Sections 21 and 22 are devoted to general maintenance instructions and fits and tolerances, respectively. Section 23 contains trouble-shooting information and indicates tests which can be made to help determine the cause of mechanical difficulties which may arise.

Copies of the new manual can be obtained for \$5.00 each at any Allis-Chalmers industrial dealer or the Allis-Chalmers Mfg. Co., Tractor Division Service Department, Box 512, Milwaukee 2, Wis.

Perlite Institute Seal

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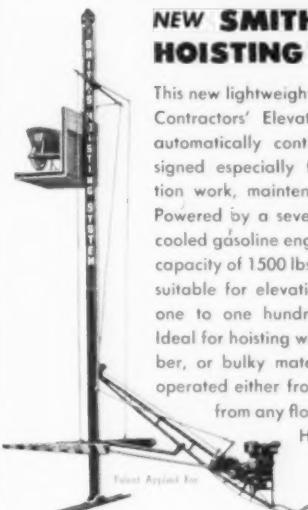
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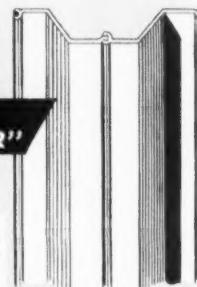
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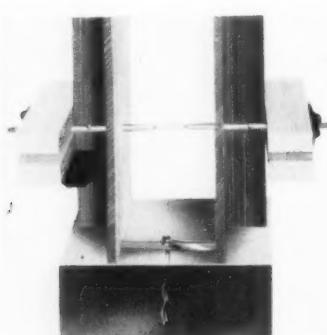
White Mfg. Co.
Elkhart, Ind.

Williams Form Engineering Corp.
Box 925, Madison Square Station
Grand Rapids 7, Mich.

Wodack Electric Tool Corp.
4627 W. Huron St.
Chicago 44, Ill.

Worthington Pump & Machinery Corp.
Holyoke, Mass.

Worthington Pump & Machinery Corp.—Ronsome Div.
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Williams Clamps showing nail in stud spacing—waler support—and form aligner.

CONCRETE FORM HARDWARE

Williams—

"Vibra-Lock" Form Clamps

"Super-Hi" Strength Tie Rods, Pig-tailed Anchors and Couplings

"Anchor Grip" Form Aligners

"Non-Slip" Waler Supports

For complete information write for our catalogue
"Form Engineering #1600"



Waler supports.

WILLIAMS FORM ENGINEERING CORP.

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High Tensile Tie-Rod Couplings.

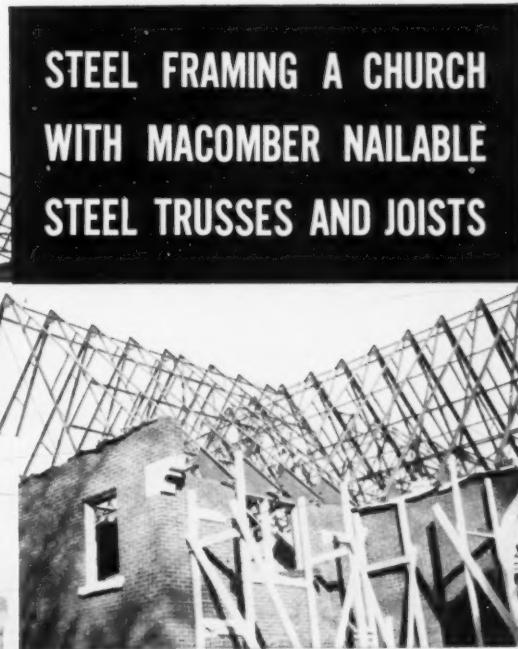


MACOMBER NAILABLE ROOF TRUSSES



PATENTED
MACOMBER NAILABLE V BAR JOISTS

FOR SPANS 4 TO 40 FEET



Here is an example of Macomber Light Steel Framing as produced for Apartment Houses, Schools and Churches.

The light steel trusses and open web rafters are fabricated from the Macomber Nailable V Section, providing secure nailing for roof and ceiling finishing materials.

In the village church job shown here, designed in the form of a cross, trusses were centered at four feet and braced into a rigid, rugged structural plan.

Macomber 40 foot Nailable Steel Joists span the width of the auditorium and support the floor slab.

These framing systems provide an abundance of strength without excessive weight and bring overall costs down to a minimum. Write for further information.

Send for NAILABLE V JOIST CATALOG.

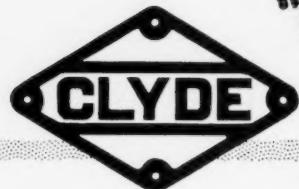
STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER • INCORPORATED
CANTON, OHIO

IN CANADA, SARNIA BRIDGE CO., LIMITED, SARNIA, ONT.
IN MEXICO D. F.—MACOMBER DE MEXICO S. A. CEDRO 500

V BAR JOISTS • LONGSPANS • BOWSTRING TRUSSES • STEEL DECK





"QUALITY PLUS" HOIST

... KEEPS A "TIGHT LINE" ON MATERIAL
HANDLING COST. For ...

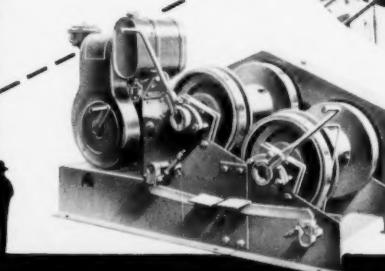
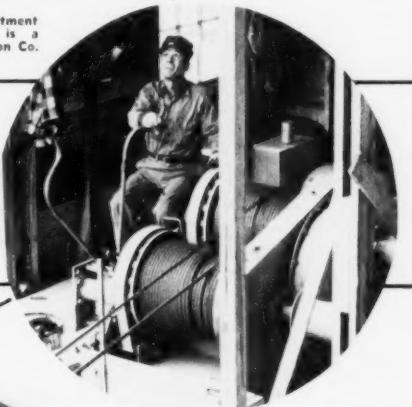
PAUL SMITH CONSTRUCTION
COMPANY



THE selection of Clyde for the hoist-handling of all materials on this 210 unit apartment building again attests to the dependable performance of this Clyde "quality-plus" Frame 4 Hoist. The added safety of conveniently located controls and easier operation, lower power requirements due to ball bearing construction, and the honest-to-goodness quality of a Clyde Hoist assure greater productivity per man-hour and the elimination of "down-time" . . . the difference between profit and loss on a project such as this. If you want to stand toe to toe with competition and "stay in the black," it will pay you to drop a line requesting complete information on Clyde "quality-plus" Hoists.

This new 16 story, 210 unit apartment building in Jacksonville, Florida, is a project of the Paul Smith Construction Co.

Here is the two drum, Frame 4, fifty horsepower electric Clyde Hoist in operation on the job. Gasoline or diesel powered units are also available.



CLYDE "QUALITY-PLUS" FRAME 3 HOISTS

One and two drum models of Clyde Frame 3 Hoists have all the quality features of the larger Frame 4 Hoists. This unit is recommended for work where hoisting requirements do not exceed one and one-half ton capacity. Choice of power: gasoline, diesel or electric.

Frame 3-4
Clyde Hoists
are also
made in
Canada

CLYDE IRON WORKS, Inc.

Subsidiary of Barium Steel Corp.

DULUTH 1, MINNESOTA